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A Report on the Education Park.

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The evolution of the education park is traced, and the present park concept discussed. The park concept is then applied to actual conditions in Philadelphia, New York, and Baltimore. Many of these conditions are typical of those existing in other large urban areas. Along with delineating the advantages and disadvantages of the park for the three cities, prototype park designs are presented for Philadelphia, a linear city is proposed for New York, and park plans are considered for Baltimore, along with diagramatic representations for each city. An annotated bibliography of books and articles concerning education parks is included. (FS)

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a report on the education park

CORDE CORPORATION
Wilton, Connecticut

EF 002 444

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introduction

In the fall of 1966, the Community Research and Development (CORDE) Corporation undertook a tri-city feasibility study of the education park through a grant obtained under the Elementary and Secondary Education Act, Title III, and administered through the boards of education in Baltimore, New York, and Philadelphia.

The original study proposal called for two phases. In the first phase, for which funds were advanced, the major advantages and disadvantages of the education park concept were to be examined, using data gathered from the three study cities. This examination was to be done simultaneously in the three cities. The second phase was to have been the construction of hypothetical park models to meet three or more school situations as reflected in these cities. Phase two was to have been undertaken only after approval by the cities of the work in phase one.

The reality of urban school problems forced a change in the original study design and execution. We believe the result is a more useful product. Two of the three cities were delayed in receiving grant funds. Moreover, we soon found ourselves involved in specific school planning situations in conflict with prevailing opinions on the park. Rather than study the park in the abstract, we tried to determine whether the park was an answer to immediate school problems. The result has been a clearer realization of the opportunities – and the limitations – of large-scale school complexes in the urban setting.

This is a summary of our efforts. It includes our report to Baltimore as well as the highlights of two interim reports previously submitted to New York and Philadelphia.

The reader will discover that the report has become more of a case study than a feasibility study. The evolution of the education park is traced, some major questions are raised, and the concept is then applied to the actual conditions of the three cities, many of which are typical of those existing in other large urban areas.

The study and final report has benefitted from the advice and labor of many persons. While the findings and final judgements are solely those of the CORDE Corporation, we acknowledge the help of:

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Two planning consultants contributed significantly to the study: David A. Crane helped in the development of prototype park designs, and we acknowledge especially the contribution of Mr. Crane and Peter Brown of his staff. The Associated Architects and Planners of Baltimore contributed greatly to the Baltimore project, and we are grateful for the work of Peter Paul and others of that firm.

Traffic and engineering analyses were performed by William R. McGrath, Transportation Coordinator of the Boston Redevelopment Authority; and Albert Landino, City Engineer of New Haven, Connecticut.

We also acknowledge the help and time given to us by the members of the Philadelphia Committee for Education Parks, who met with us to outline their ideas on the park concept. Many other individuals from each of the study cities, too numerous to mention here, gave us fundamental insights into the potential merits and problems of the park idea.

In each city, we were given full cooperation and assistance by members of the school staff. Our principal liaison was with the following, who helped us immeasurably: in Philadelphia — Graham Finney, Director of Development; in New York — Joseph McCarthy and Adrian Blumenfeld; in Baltimore — William Pinderhughes, Administrative Assistant to the Superintendent.

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the education park:

Evolution of a Concept

The education park is not a new idea. As early as the turn of the century, Preston Search, then Superintendent of Schools of Los Angeles, California, proposed a "school park" for that city. Search, an admirer of John Dewey, was also greatly influenced by European educational practices. He felt that a healthy farm environment, away from smoking chimneys and congested urban conditions, could lead to "unconscious instruction"[1] through the inclusion of such units as a zoological garden, a museum, and a miniature ranch.

Search proposed a 200-acre site which would house the entire school population of Los Angeles in separate but related buildings. The sketches he produced in his book, *The Ideal School or Looking Forward,* showed gardens, ponds, a school transportation system, and a plan for each school to be a "community by itself and under one management."

He also presented his argument for the school park in financial terms. His theory, frequently cited today, was that Los Angeles taxpayers could save money if the antiquated schools in the central downtown area were to be sold, and land purchased and schools constructed on a 200-acre site on the outskirts of town. He did not, however, discount the idea that the school park might result in increased costs. Search argued that the park would probably save money – but if it didn't, the better education would be worth the increased price. As he put it, "But, after all, what are we living for if not for our children?"[2] He said also, "The people are not tired of taxation for the schools, but they are tired of taxation without returns."[3]

Search emphasized that his school park would be more than a traditional educational institution – it would be a cultural center, library, vacation farm school, and a meeting place for people of all ages.

Preston Search was obviously well ahead of his time. He called for ungraded instruction, individualized comments by teachers instead of grades, and student seminars. He also proposed a teacher pupil ratio of one to 24 – a revolutionary idea at a time when the average class had more than 50 students.

The basic themes Search established for the park, i.e., a pastoral school setting, the school as a community center, and the park as a means of educational innovation, recurred in school planning during the early part of the century. In one way or another, these found their way into a number of specific proposals for variations on or prototypes of the park idea.

In 1928, Radburn, New Jersey – a model community of 25,000 in the New York metropolitan area – provided for a small-scale variation of the education park by combining generous amounts of open space and community recreation facilities with new school construction. The town plan called for a neighborhood development scheme in which 600 families were to be "grouped around interior parkways, which will be about half a mile long and the width of a city block and in which will be located a school, playgrounds, tennis courts, and community rooms."[4]

At just about the same time, Wallace K. Harrison, the architect, and C. E. Dobbin, Superintendent of School Buildings in New York City, claimed that big cities had only two options: either to put school buildings in a park, or to place schools on top of skyscrapers.[5]

Through the years, the park idea persisted, though the realization was minimal. In the 1920's and 1930's, the emphasis was on coordination of school sites with parks and playgrounds. Later, there was the "campus plan," which advocated a community school in a park setting, to include museums, art galleries, concert and lecture halls, gardens, zoos, water areas, and theaters.[6]

A step-by-step reconstruction of the many variations on the park idea is not intended here. Through the years, however, there were instances of both theoretical park planning and concrete site proposals. By and large, expressions of the park *idea* have been more numerous than actual, physical plans. Here are a few examples:

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[1] Search, Preston, *The Ideal School or Looking Forward,* New York: Appleton, 1901, p. 76.

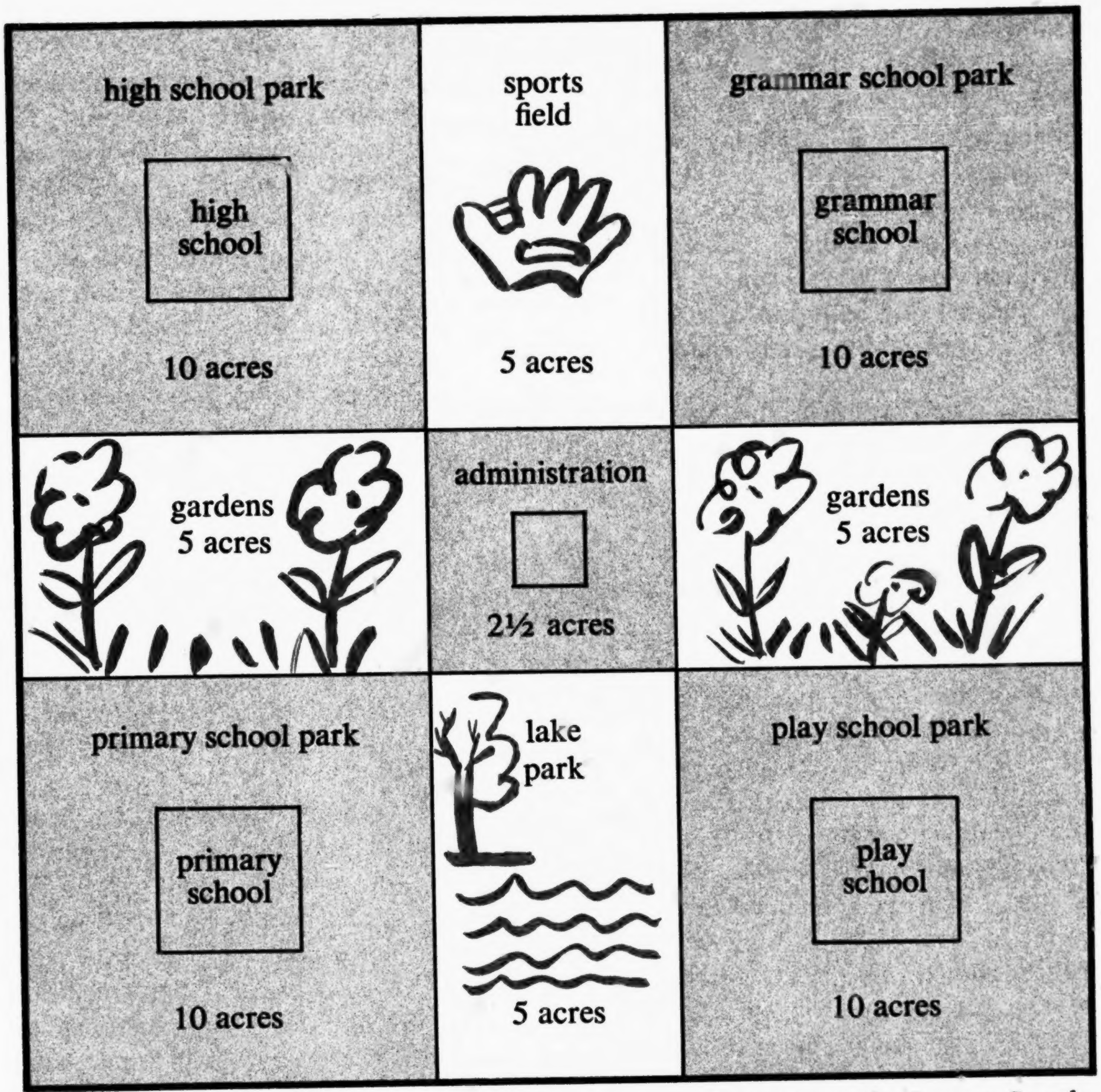
[2] *Ibid.,* p. 103.

[3] *Ibid.,* p. 328.

[4] "Model Town To Rise In Jersey To Meet Needs of Motor Age," *The New York Times,* January 25, 1928, pp. 1 and 13.

[5] Harrison, W. K. and Dobbin, C. E. *School Buildings of Today and Tomorrow,* New York: Architectural Book Publishing Company, Inc., 1931, p. 7.

[6] Engelhardt, N. L., "Trends in Schoolhousing Design," *American School Board Journal,* January 1942, p. 28.


high school park
high school
10 acres
sports field
5 acres
grammar school park
grammar school
10 acres
gardens 5 acres
administration
2½ acres
gardens 5 acres
primary school park
primary school
10 acres
lake park
5 acres
play school park
play school
10 acres

The basic site plan for the original education park, as adapted from the Preston Search proposal for Los Angeles.

During the Depression, the Detroit, Michigan schools proposed school complexes housing 6,000 to 10,000 pupils each, ranging from elementary school to high school. One of these, the Roosevelt-Central Complex, was built originally on one site to effect savings on heating costs.

In 1939, Glencoe, Illinois completed a "community-park school" on a 10-acre site. This was a school designed for adults as well as children and included a 1,000-seat community auditorium among its facilities.[7]

In 1946, Virginia and Edward J. Matson proposed a school and community center of "fixed and movable" buildings in a garden setting of parks and playgrounds. They proposed a single site for all students from nursery school through junior college.[8] This theoretical site plan was never realized.

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[7] McFadzean, John, "Community School at Glencoe," *Nation's Schools,* March 1942, pp. 21-23.

It wasn't until the 1950's that the education park was once more thought of as an economy measure – one of Preston Search's basic arguments back in 1894. Charles Colbert, an architect for the New Orleans school system, proposed a plan for "school villages." He named two goals – first, to effect economy in the building of much-needed schools in the overcrowded Negro slums of downtown New Orleans; second, to provide a superior education program for more than 9,000 students. He hoped that this plan might even bring about some degree of integration – quietly and discreetly. His vision was of a "suburban park" which would provide specialized instruction in a beautiful setting.[9]

Ironically, the only part of Colbert's proposal which was eventually adopted was his suggestion for its site – 90 acres in the outlying Gentilly area. The project, completed in 1958, cost slightly over $4,000,000 – about one-third of the projected cost of the originally proposed school village. It was designed to serve about 4,000 students, instead of the 9,000 Colbert had envisaged. Called the George Washington Carver School Park, it now serves 8,000 local Negro pupils in what is basically an over-sized – and overcrowded – neighborhood school.

A recent and more successful park endeavor is the Nova Education Park in Broward County, Florida. The Nova park is essentially a physical expression of an educational idea; it is not designed as an economy measure, a community center, a means of providing fresh air and open space, or for any of the similar reasons frequently cited as guiding the park concept. The park is a total education center. An effort has been made to establish strong communication among students and faculty of all the components. Key to the Nova park is an educational research center which works closely with the teaching staff in establishing educational goals and providing in-service education. The center plus an elaborate T.V. network is planned as the main element in the entire system.

The Nova park is still under construction. The elements already completed include two elementary schools, an administration building, a senior high school, a junior college, and the beginnings of a new technological university. The students are to be given considerable latitude in charting their own educational programs.

The Nova program provides interesting insights into the potential of the education park, but it has limited applicability to the needs and problems of the larger urban school systems. The school is open on a voluntary basis. It is being developed on an abandoned airport in a rural area. It is faced with no significant racial problem – at least in terms comparable to those existing in Northern cities. Even the Florida climate offers a unique impetus to successful park operation, not only as an inducement to teachers but by removing the problems of inclement weather which in Northern cities can make it difficult to move children and teachers.

The New Orleans and Nova education parks are the only two recently built, large-scale parks in operation, although a score are being planned or proposed in other communities. A smaller-scale education park was recently opened in Acton, Massachusetts.

In every case, the shape and organization of the current park proposals reflect specific local needs. In Syracuse, New York, for instance, a prekindergarten-through-fifth-grade park is being planned to strengthen the elementary school program. In East Orange, New Jersey, a kindergarten-through-twelfth-grade park is proposed to replace, eventually, all the schools in that city. Quebec City in Canada is building a kindergarten-through-twelfth-grade park to provide needed new school space in that city. Quelph, Ontario has completed parts of its 3,000-pupil recreation and education complex. In metropolitan Toronto, Canada, the Stephen Leacock Educational Complex, to be completed in 1969, will accommodate pupils on a 7-3-3 plan.

Pittsburgh, Pennsylvania is planning large high school parks connected by walkways to existing middle schools. Albuquerque, New Mexico is considering four primary and middle school parks for 13,000-to-20,000 children each.

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[8] Matson, V. & Matson, E., "Designing and Creating Tomorrow's Schools," *American School Board Journal,* January 1946, p. 27.

[9] Colbert, C. R. and Spray, N., "School Villages," *American School Board Journal,* January 1953, pp. 33-36.

Nova Park in Broward County, Florida. Shown here are the completed units: two elementary schools, an administration building, a junior college, and the beginnings of a new technological university.

St. Louis, Minnesota is looking into the feasibility of a metropolitan education park for all levels. Berkeley, California feels it has the equivalent of a high school park already, and is exploring a K-8 park.

From the park proposal of Preston Search to the park planning underway today, the concept has been shaped by the needs and conditions of the community it was to serve. Those needs might be for more open space, educational innovation, community centers, economy, or, in the context of today's problems, school desegregation and integration. Certainly a major impetus for contemporary park planning (and a major reason for this study) is that numerous educators, planners, sociologists, and community groups regard the park as a viable alternative to the neighborhood school, which, in its present form, is generally regarded as an obstacle to school desegregation. One of the foremost proponents of the role of the education park in integration is Dr. Max Wolff, who also advocates using the park as part of the "fundamental reorganization of the school system" and "the renaissance of the center city."[10]

The park must also be measured against the need for other improvements in public education. School desegregation and integration are part of a larger issue of educational quality. The park, if it is to be an effective school form, must provide, or at least hold the promise of providing, a higher quality of education than is now possible in smaller scattered-site schools.

And behind this investigation is an interesting irony. The park, originally developed as an anti-city device, must now be evaluated in an urban context as a means, together with other planning tools, of improving the physical condition and quality of life *in* the city.

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[10] "Max Wolff on Educational Parks," *The Urban Review*, December 1966, p. 35.

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the park concept today

The park concept has been fluid, shaped by local conditions and often defined in terms of goals, not ingredients. It is significant that, for all the enthusiasm it has generated, few education parks have actually been constructed.

The only two fixed characteristics of the education park are its large size and its consolidation – of age groups, teachers, and facilities. Today the concept is seen as the road to integration, higher educational quality, and cost economies. But when one attempts to relate these goals to the characteristics of large size and consolidation, one encounters questions as well as answers.

School Desegregation and Integration*

A large school complex or facility, when compared with smaller neighborhood schools, has a greater potential for the integration of its students. The neighborhood school draws from a restricted geographic area which, in the city, is quite often characterized by a preponderance of one ethnic group – Puerto Rican or Negro in most inner-city neighborhoods. The larger the attendance area, the greater the chance for student diversity, and for flexibility in feeder patterns.

The neighborhood school can be a means of school integration when it is part of total community development. The Grant school in New Haven was built as part of a 221 (d) 3 housing development in a formerly substandard Negro ghetto. The housing is integrated; city officials feel the small neighborhood school, in this case, will lead to integration.

The culprit: the old, overcrowded, small-neighborhood school, drawing students from a small geographic area, usually in the inner city, often predominantly non-white. This one is in Baltimore. Currently scheduled for replacement, it was included in our study of the education park in that city.

Park advocates feel that the park, through size and consolidation, can overcome the disparities in facilities and staff which can exist among numerous, smaller schools on scattered sites. In this sense, size is viewed as encouraging equal educational opportunities, a key issue in school desegregation efforts.

A large school complex can offer advantages to a school system which takes its desegregation responsibilities seriously, but it provides no discernible attack on the root causes of segregation.

The causes of school segregation are obviously more complex than the size or location of a school. The school population, at best, can merely reflect the population of the city as a whole. In most cities, the population trend is toward an exodus of the white middle class, and the immigration and often ghettoization of Negro and Puerto Rican families.

Schools can and do play a role in determining where people live and in the resultant population composition. But that role is just one part of broader considerations involving the availability and quality of housing, jobs, transportation, recreation, and commercial facilities.

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*We treat school integration separately from the issue of school quality because integration, while one requisite for quality education, is not a sufficient condition in itself. Other characteristics must be added; these will be discussed later.

In recent years, urban school administrators have learned how fragile, temporary, and frustrating school desegregation efforts can be when they are made in a planning vacuum – that is, without the involvement of other agencies. The local public housing or urban renewal agencies – to cite two of many examples – have just as much influence on who goes to what school as the man in charge of attendance boundaries.

The education park can be nothing more than an interesting idea if it serves an area undergoing unplanned and undirected population changes. Similarly, the park or parks can be rendered impotent as far as integration is concerned if planned for a city becoming predominantly nonwhite and having no discernible or effective public policy to maintain diversity.

There are areas of a city with sufficient stability to allow the park to achieve its potential for school desegregation and integration. There are others where, without awkward gerrymandering of boundaries, the park would result in segregation on a mammoth scale. There are, in fact, some situations where a smaller school would be a more effective means of school desegregation, such as neighborhood renewal areas where the planning and economics of new housing would result in the integration of a new neighborhood school built under the plan.

It's how the school is related to total planning that counts; the size of the school must be dictated by the planning situation.

The face of any large city is composed of widely divergent sections with equally divergent social and economic conditions and planning opportunities. The choice of school size cannot be governed by generalized claims, but by what works to achieve desegregation through joint planning and action.

Educational Quality

Size and its relationship to educational quality varies – it all depends on the conditions of the comparison. The needs of a community, the condition of the schools it now has, and the kind of new schools it plans to build must be kept in mind. This was the consensus among a panel of nationally known educators convened to help us gauge the merits of the education park. Their opinions seemed to reflect their own mental comparisons with their own school systems. "An exciting educational idea," one called the park. "A circus," said another.

Generally, the panel was favorably disposed. A few liked the park concept simply because it was unusual. Others favored it because the concept had generated enthusiasm, and enthusiasm for any idea, they felt, was at least as important as its intrinsic merits. Most of those who favored the park felt it had the potential for "flexibility" in school planning and programming.

The panel found it difficult to see how the park's size would provide for greater instructional advantages than could be achieved in a 4,000-6,000-student senior high school, or a

School systems are already achieving specialized instructional areas through large school size or school clustering. P.S. 219 in New York is an elementary school with considerable specialization and flexibility in instructional areas.

The Polywestern High School in Baltimore features two high schools on a common site with shared core facilities, such as auditoriums and recreational, food service, and administrative areas.

large (1,500-1,800) intermediate or (900-1,000) elementary school. What they did see were advantages in consolidation of facilities, age groupings, and teachers. The presence of different levels of schools on a common site could lead to a greater continuum in guidance, increased vertical mobility for students, more comprehensive teacher education, and more specialized instructional space. None was prepared to say that the park was an exclusive path toward the kinds of guidance, mobility, teacher education, and specialized space they thought desirable. Rather, they felt the park could remove a chief obstacle to their attainment, namely the geographic distance normally separating smaller schools, their staffs and facilities.

All members of the panel treated the problem of size with respect. The chief concern was that the park might have the potential to become an unworkable monolith. Experience with educational institutions of 10,000 or more, which is the scale most contemporary park proposals call for, shows that this size can lead to a breakdown in communications. Ironically, the large size and consolidation which could bring about program flexibility in a park could also lead to administrative inflexibility. Perhaps there is no precise limit on size save for that imposed by our human capacity to deal with it – and this is a fundamental problem of our time.

The basic question posed by the panel – a question which goes unanswered in most park proposals – is: At what point in size does the park present its maximum advantages? Beyond what point do the advantages of the park diminish and the disadvantages of large size take over?

Here are some general observations on this question which guided our recommendations in the three cities:

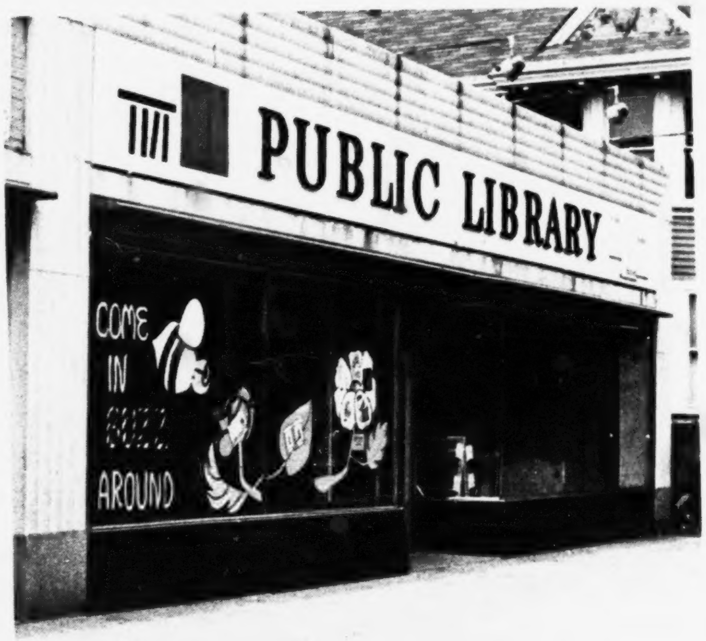
Many, if not most, of the tangible educational benefits of the park flow from the efficient space utilization which a large student body makes possible. As schools are clustered on one site, they begin to share underused facilities such as the auditorium. This increases utilization, decreases the cost per child, and parlays the savings into specialized space for new or expanded programs. For example, two elementary schools located on the same site can share one auditorium. The saved space can be devoted to a use neither school could have had if separated. This new use could be anything from a pre-kindergarten center to a larger school library. As one includes four or seven or nine schools, space utilization increases and the planning options increase to include highly specialized facilities and equipment. This could well mean expanded or unique programs.

As we studied the educational specifications for schools in the three study cities, we learned there are limits to these windfalls. In some schools, there is a real question, for example, whether these institutions really need more science laboratories, language centers, remedial reading rooms, or similar instructional space. There is already pressure to build large schools or to cluster schools to provide for increased space utilization and for specialized space allocations. In other words, many of the instructional advantages of a larger school are already being tapped. A larger library or more specialized libraries could be one result of a park. Generally, however, the park would lead to the construction of facilities which a traditionalist might well call non-academic, such as swimming pools, concert halls, a museum, a fully equipped dental and health clinic, a teen lounge, or a television studio.

Two questions arise at this point: How crucial are such facilities to the education process? Assuming they are crucial, how large does a park have to be before it can contain them?

On the first question, debate is often heard on whether a school system should be providing music facilities, dental care, elaborate recreation programs, swimming, and the rest. In the suburbs and some areas of the city, the debate has meaning because there are alternatives available. A child need not depend on the school for strictly non-academic activities and services. But many of the city public schools have inherited these responsibilities by default, and debate over whether the schools should provide recreation, or health care, or after-school activities is hollow. If the school does not provide such programs, particularly in low-income areas of the city, then it is often likely no such programs will exist.

The school certainly has an interest in and is directly affected by parental attitudes, a child's diet, his health, his physical activity, and his creative outlets. Such non-academic considerations influence his school performance. And when this influence is a harmful one, the provision by the school of programs to offer lunch, or to provide comprehensive medical care, must be considered relevant to the education process.



The trend toward decentralized community facilities imposes limitations on the size and use of such facilities in a park. Philadelphia, for instance, has pioneered in placing storefront libraries and other services close and convenient to the people they serve.

Increasing the role of the school in the life of the child is one of the advantages of the park most underlined by park proponents. But, just as there are limits on how much a park can provide in instructional programs and space, so, too, are there practical limits on how much a park should do in non-academic, community-related programs and facilities. There have been proposals for the park to serve as a center for concentrated community services and for recreational and cultural programs. While this may be economically feasible and desirable in a park, it is increasingly recognized that, for many community service centers to be effective, they have to be convenient to the people. There is a welcome trend to locate many service functions where people congregate — at transit stops, in shopping centers, or right on neighborhood streets through bookmobiles or other vehicles. The established success of storefront libraries, neighborhood employment centers, and other such programs must be taken into account in park planning.

Another key aspect of the park's role in other than pure academic matters is its relationship to the community it serves. Any school's responsiveness to the needs and problems of the community is influenced enormously by how the school is administered — how free its administrator is to shape the school's organization and programs not according to some abstract master plan, but in the light of actual daily conditions.

A common criticism of city schools is that they are often too rigid and bureaucratic. There is more than a geographic distance between those who set policy, hire, and pass on budget matters in a downtown office and the teachers, principals, and parents who work with or are involved in the schools. The size of the city school system and the distance separating schools are basic components of the problem.

One reform which has often been suggested is that principals, with the increased involvement of teachers and parents, be given much greater authority for their schools, even to the point of hiring their own staffs, administering separate school budgets, and establishing their own curricula under an overall system guideline.

An education park can logically provide this kind of administrative autonomy. The park will require considerable freedom and flexibility in establishing relationships among administrative staff, teachers, pupils, and parents, if only because the downtown office would have no exclusive wisdom on these matters. Indeed, we feel, if the park is not regulated under administrative arrangements based on considerable park autonomy, a school system would be passing up one of its great potential benefits. By creating a large school unit on a self-contained site to replace separated, small school units, the park hurdles one of the great obstacles to logical and controllable decentralization. It would also put administrators, teachers, and special service personnel in closer contact with each other.

How big does a park have to be? How big, that is, before it pays off in the potential for administrative decentralization, or specialized instructional space, or in after-school and community-related facilities?

It all depends on the community. The Nova park has been designed at a 5,000-pupil capacity. The New York City school staff has found that the specialized instructional areas and grade combinations they desire can be achieved in a 10,000-pupil park. In Baltimore, this study showed that significant increases in instructional space can be achieved in a 6,000-pupil park. The size of a park will be determined by the kind of instructional program and related school programs a school system wishes to provide, and what it is willing and able to provide in its scattered-site schools. The residential density and ethnic distribution of a city will also play a role. And related to the question of size will be the economics of park-scale construction.

The Education Park and Economy of Scale

Preston Search was probably the most forthright of the park enthusiasts when it came to economy. In effect, he said the park would probably save money – but if it didn't, it was worth the increased costs. Our engineering and cost analysis agrees with Search's ideas as far as physical facilities are concerned. The economics of the park are based on size. Size creates economies which save money. Size also creates complexities which cost money. In most cases, the economies of size will at least be equalled by the complexities.

The economies of size flow from greater space utilization which results in decreased costs per pupil. In a school complex, opportunities exist not just to maximize space utilization within a school, but to remove certain duplications. Auditoriums, cafeterias, assembly areas, administrative space, and boiler and maintenance areas, for example, are facilities which could be consolidated and shared.

Large size also makes possible construction economies. Contracts for large units usually result in lower square-foot building costs because the contractor increases his base for overhead expenses and has many repetitive work items, such as forms and scaffolding. In some communities, architects' fees decrease significantly on a square-foot basis when the construction project is large.

If a park is to provide educational opportunities not available in smaller schools, these economies of large size would never be realized in lower costs. They would be transformed instead into specialized facilities and services. In New York City, the Northeast Bronx Park Study* showed that 31,600 square feet of space could be saved in a park, as compared with five separate schools. The educational program for the park, however, called for 60,575 square feet of

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*This study was conducted in 1966-67 by Dr. Joseph McCarthy and August Gold of the New York City Board of Education.

Large size can also create problems.

added instructional space which would not have been available or financially possible in the separate schools. In Baltimore, our studies showed that 29,000 square feet in assembly and food-preparation space could be transformed into additional instructional space when six schools were clustered in a park.

The complexities of large scale, at least as they apply to an education park, will also *create* costs a school system would prefer to avoid. The biggest of these will involve the movement of students, teachers, and goods to, from, and within the school.

The park will require service roads and loading and unloading areas. It will also require substantial investments in off-street parking. Normally, a school relies on existing streets to handle transportation, loading and unloading, and parking. But a park of 10,000 students, for instance, would create massive congestion and a severe blighting influence on adjacent areas if these functions were not handled off the regular streets. In all areas, this would require additional land acquisition. In dense inner-city areas, it would also mean structured parking and loading facilities, which can be expensive. The construction of these facilities, shared by families in adjacent residential areas and by others, would probably be in the best overall interests of the city. But someone would have to bear the costs.

The park will inevitably result in large transportation expenses. How great will depend on how much student transportation is already underway. But the added costs will have to be borne by the schools, the parents, or by public transit facilities through school subsidies.

Still another major cost factor will be the cost of land assembly and preparation. The only realistic way to compute these park costs is to consider how they would compare with sites for a comparable number of smaller schools. For example, the normal frustrations encountered in locating an adequate school site can be considerably aggravated in the search for a park site. Large tracts of undeveloped land are getting scarce. Where they exist, there is competition from other potential developers – housing, industry, commerce, or other public agencies – which may wish to keep them open. Assuming the schools can get such land, they will most likely find out quickly why the land is still open —perhaps poor subsoil conditions, inaccessibility, or rough terrain.

Building a park on already developed city land presents other problems, including family and business displacement. Urban renewal is the best means for rearranging existing land use, but there are few renewal projects where 20-50 acres or more are available for a school. Neighborhood renewal projects, therefore, would impose costly restraints on park size, site, and design. Such restraints on size and scale could easily offset any savings of a land write-down.

The issue of park-scale economy is a cloudy one, especially when considered on a general or theoretical level. Despite the claims and enthusiasm of park proponents, there are limitations, questions, doubts, and uncertainties, as we have suggested. The concept is an appealing one, but how does it hold up under real conditions? We have found that only under real conditions involving specific planning situations can the benefits and limitations of the education park be usefully assessed.

How can the potential problems be minimized and the advantages exploited, and what will be the effect on the size, form, and role of the park? These were the questions we set out to answer as we approached the specific problems posed in the three study cities.

Can the education park improve the quality of education for every child? This study found that question answerable only in specifics planning situations and given local conditions.

3

philadelphia and the twenty education parks

Philadelphia was an ideal starting place for this study. It is a large city with varied but typical urban school problems, where considerable work had already taken place on the education park. A small but articulate group, the Philadelphia Committee for Education Parks, had developed a bold idea to replace all the schools of the city gradually with a system of 20 education parks. The timing for the Committee proposal was good. There was growing impatience with the conditions of Philadelphia's schools, a new school board had taken office, and a massive school replacement program was about to get underway.

So successful was the Committee in arousing interest in its idea that the School Board took the lead in participating in this tri-city study. Our specific charge in Philadelphia was to provide insights on the education park idea, to gauge how workable a 20-park system could be, and to determine whether the system could achieve the claims made by the Committee. The Committee's goals incorporated many of the classic themes of the park, with heavy emphasis on school desegregation and integration. As stated, the goals of the Committee proposal were . . .

> to provide opportunities for quality education not possible at scattered-site elementary, middle, and senior highs.
>
> to provide the opportunity for integration and social interaction of children of different races, economic groups, and achievement levels.
>
> to create economies of scale through the concentration of facilities at one location, making it economical and possible for the School District to provide more advanced facilities.

The committee proposed that each park contain eight elementary (K-4) schools, four middle (5-8), and two four-year high schools, with a combined capacity of 15,000 students, on sites of approximately 100 acres. As for integration, the Committee proposed that each park contain no more than 70 percent white or Negro students, and that this limit be applied to each grade level. The group even went so far as to identify 12 sites for its plan, and proposed 1980 as the target date for implementation.

Philadelphia's Schools: Background

These facts concerning Philadelphia formed the background of our study there:

Among the problems facing the Philadelphia schools are those of substantial overcrowding in existing schools, significant increases in the expected public school population, the need to eliminate non-fireproof schools, and a substantial pattern of de-facto school segregation.

Population projections made in November, 1966 showed that, just to keep pace with its growing school population and to phase out pre-1906 non-fireproof schools, Philadelphia would have to construct 125,534 new school spaces by 1980.

FUTURE NEEDS: PHILADELPHIA SCHOOL SYSTEM

	EXISTING FIREPROOF CAPACITY	1980 PROJECTION	SHORTAGE
K-4	104,250	136,799	32,549
5-8	42,550	104,860	62,312
9-12	44,275	74,948	30,673
TOTALS	193,075	316,607	125,534

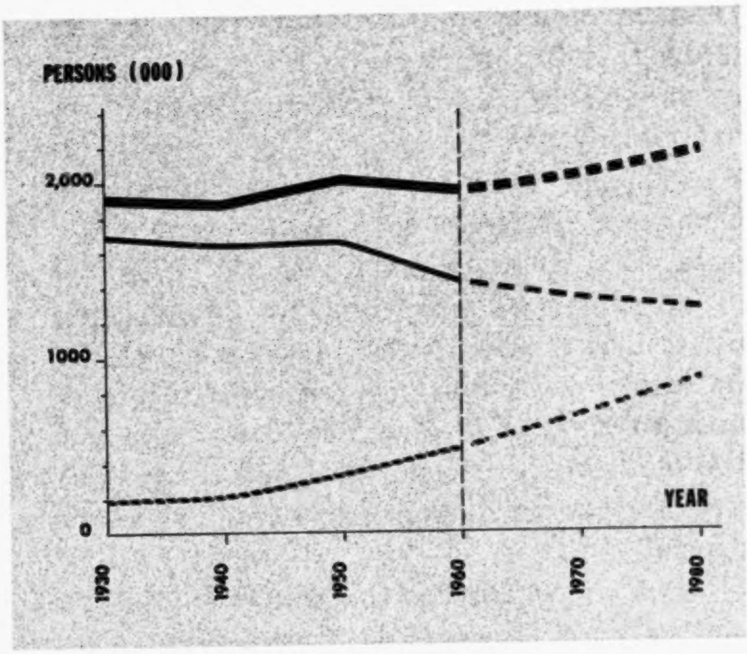
This projection is conservative in the following ways. It does not include capacity for 3- and 4-year-olds who might attend pre-school. It assumes that the current high drop-out rate of 33⅓% for high school students will continue. Finally, because the most basic needs are so immense, the estimate does not assume any phasing out of post-1906 schools as these become obsolete.

In the fall of 1966, 58 percent of Philadelphia's public school children were non-white. According to the 1960 U.S. Census, however, only 22 percent of Philadelphia's 2,002,512 residents were non-white. Both the population projections for the city and enrollment projections for the school age population show a continuing increase of non-whites, but with a similar disparity between total population composition and school enrollment composition. By 1980, 40 percent of the 2,218,000 Philadelphians will be Negroes, but Negroes will account for 68 percent of the 301,976 children expected in grades 1-12 of the public schools.

This disparity between the racial composition of the public school population and that of the

Population Change
City of Philadelphia

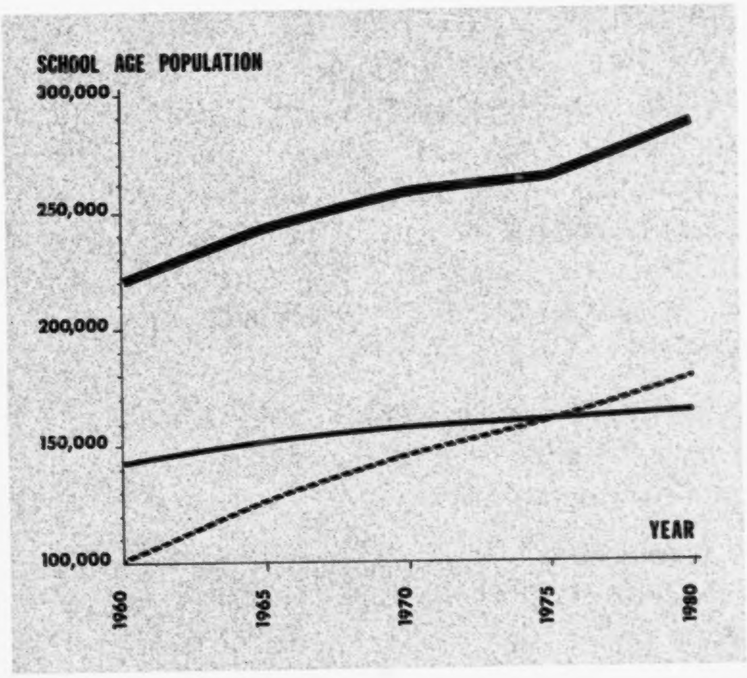
Philadelphia Planning Commission



School Enrollment 1960-1980

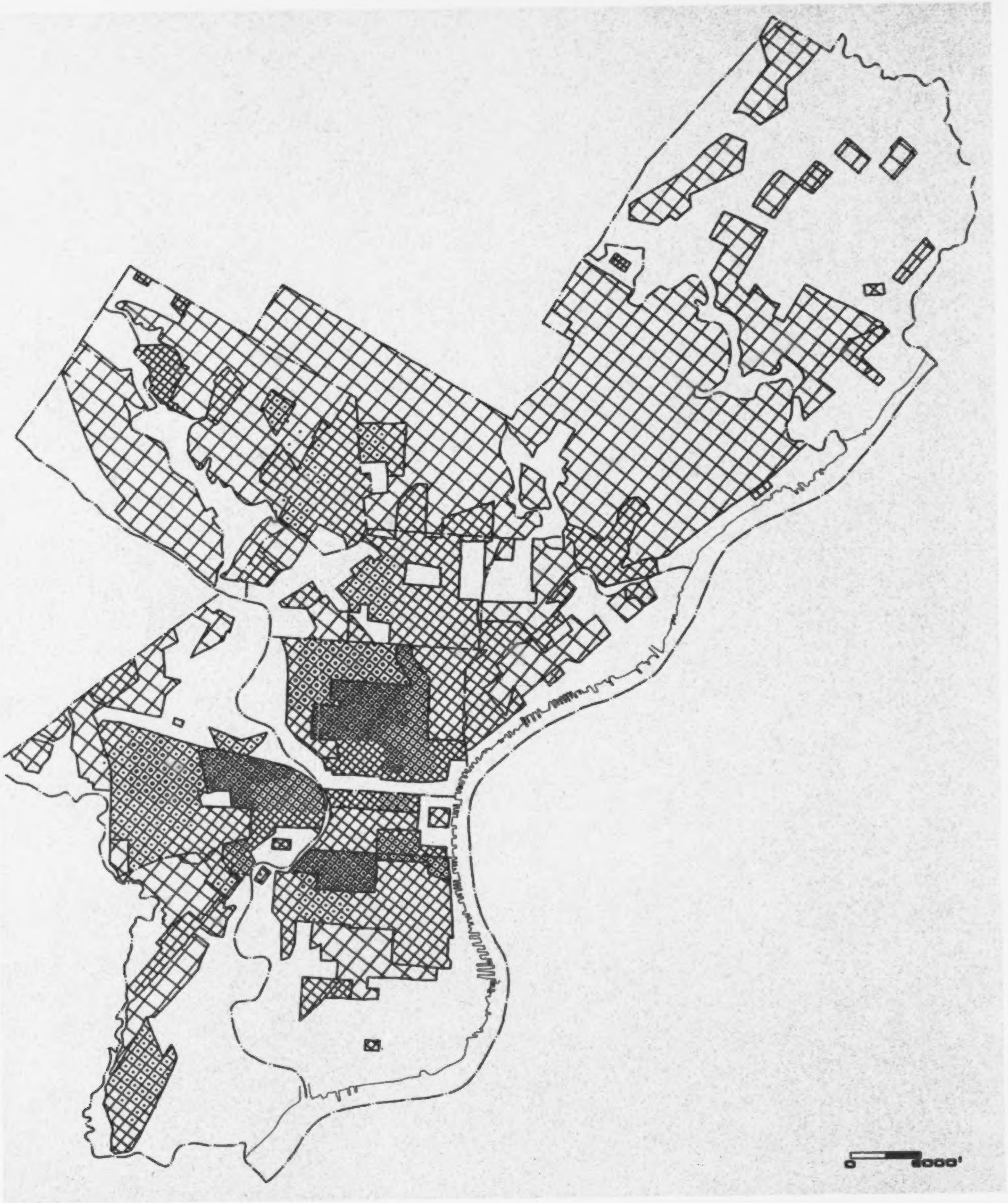
Grades 1-12
Population Projection

Philadelphia Planning Commission



total population is produced mainly by the high degree of private and parochial school enrollment in the city. Approximately 35 percent of the school age population (152,829 of 423,943 children) attended private or parochial schools in September, 1966. The majority of these were white. By 1980, the enrollment projections indicate that about the same percent will be attending private and parochial schools.

Typical of the pattern in most Northern cities is the concentration of predominantly lower-income Negro families in the inner city areas — areas where both housing quality and school conditions are the poorest. The geographic distance between these areas and the major white concentrations is substantial. The concentration of Negroes in the inner city and the neighborhood school pattern result in significant de-facto segregation. While the overall ratio of Negro to white students in the 276 Philadelphia public schools is 58 percent to 42 percent, there are 123 schools with more than 70 percent non-white enrollments and 92 schools with more than 70 percent white students.



Socio-Economic Conditions Map
PHILADELPHIA, PA.

1960 CENSUS

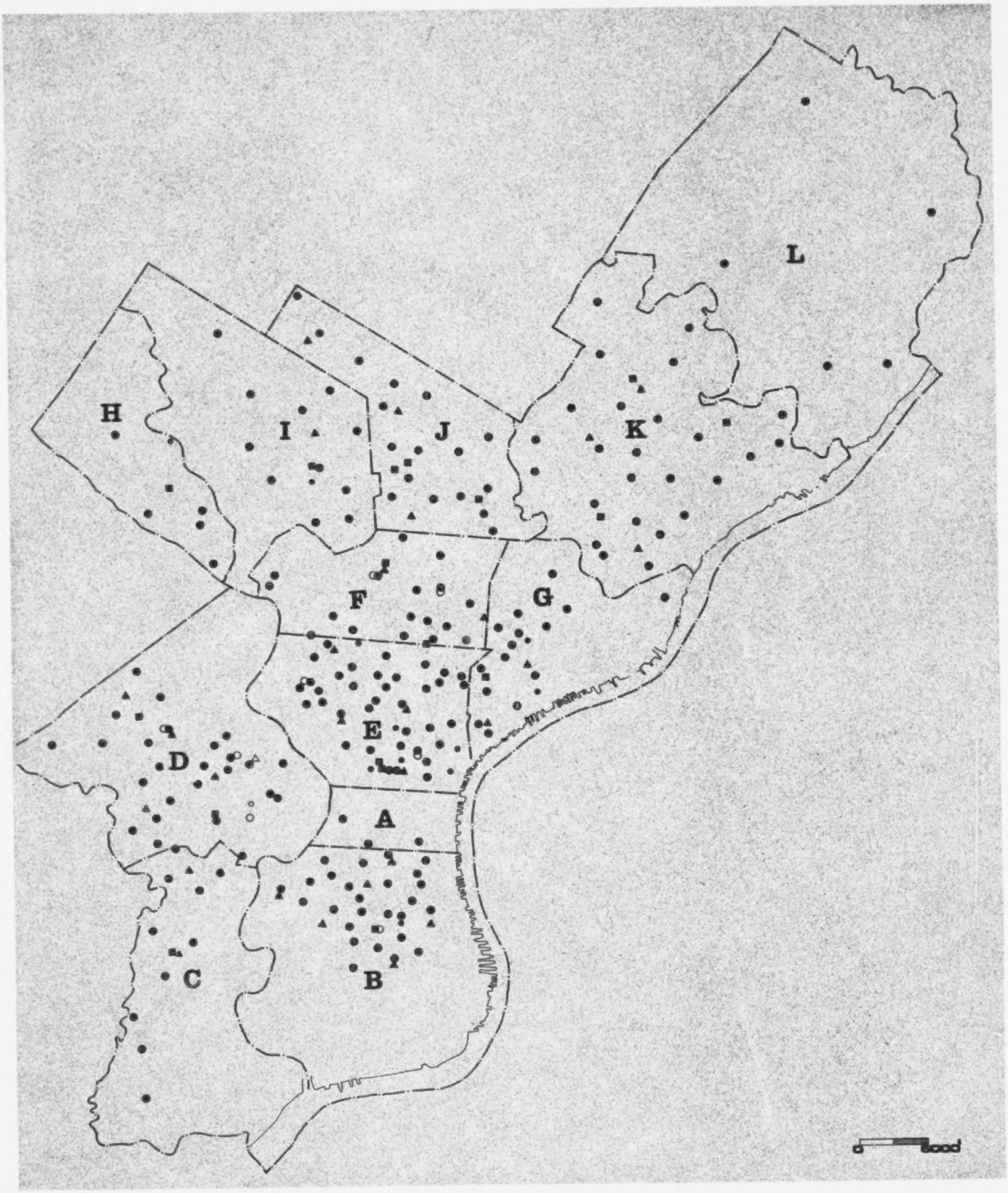
LEGEND

INCOME DISTRIBUTION

- ▩ LOW $3353 OR LESS
- ▨ MEDIUM $3353 TO $5268
- ⊠ UPPER $5268 & ABOVE

NON-WHITE OCCUPANCY

- ▩ 80 PERCENT OR MORE
- ▨ 30 TO 80 PERCENT
- — — PLAN ANALYSIS AREA


L
H
I
J
K
F
G
E
D
A
C
B

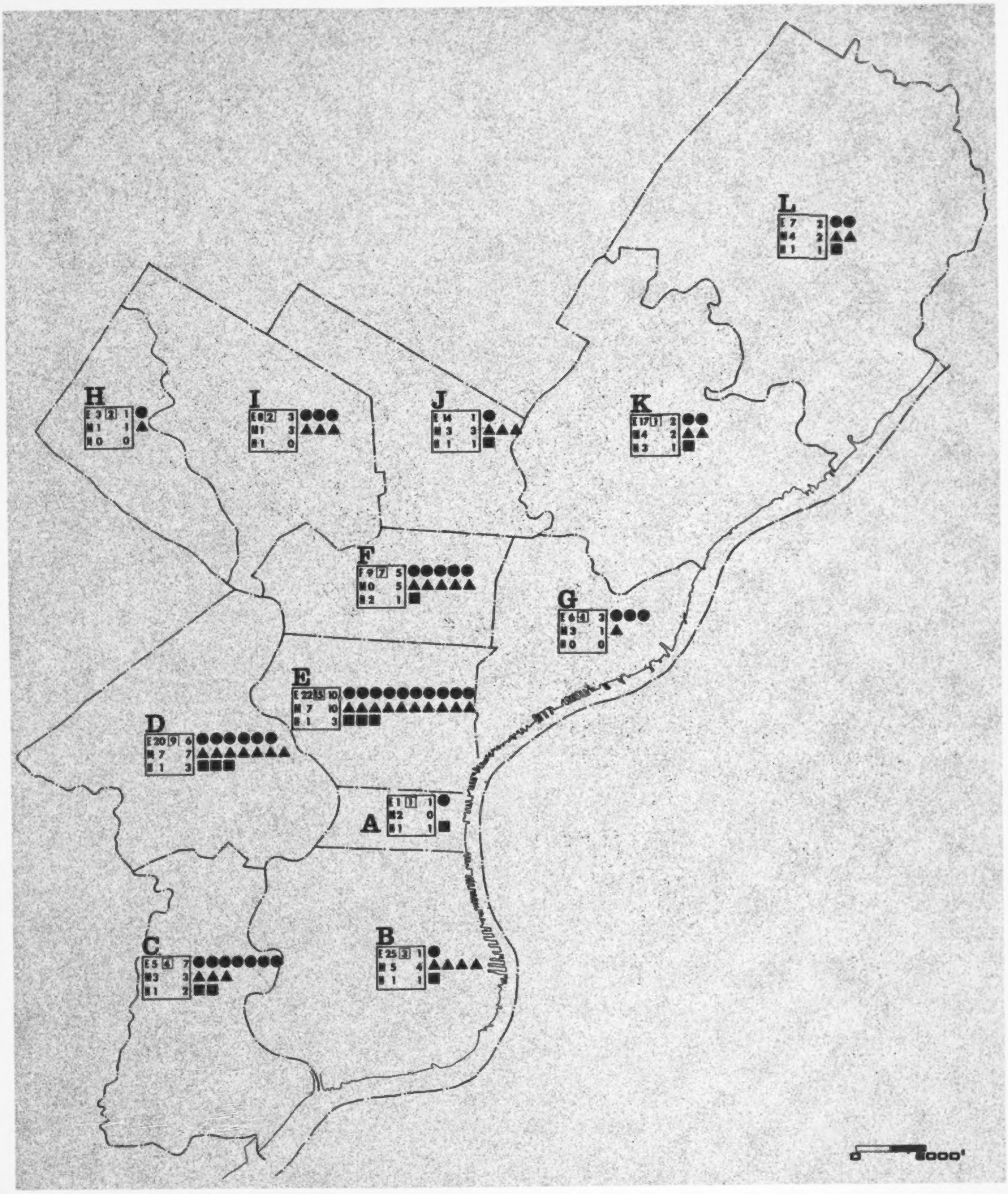
Existing Schools
PHILADELPHIA, PA.

LEGEND

● ▲ CONSTRUCTED
■ • BEFORE 1906

○ △ CONSTRUCTED
□ ○ 1906 – 1959

ELEMENTARY
MIDDLE
HIGH
SPECIAL


L
E 7 2
M 4 2
H 1 1
H
E 3 2 1
M 1 1
H 0 0
I
E 8 2 3
M 1 3
H 1 0
J
E 14 1
M 3 3
H 1 1
K
E 17 1 2
M 4 2
H 3 1
F
E 9 7 5
M 0 5
H 2 1
G
E 6 4 3
M 3 1
H 0 0
E
E 22 15 10
M 7 10
H 1 3
D
E 20 9 6
M 7 7
H 1 3
A
E 1 1 1
M 2 0
H 1 1
C
E 5 4 7
M 3 3
H 1 2
B
E 25 3 1
M 5 4
H 1 1
0 6000'

Public School Facilities Gap 1965/1980

PHILADELPHIA, PA.

LEGEND

ADDITIONAL SCHOOL FACILITIES REQ'D BY PLANNING ANALYSIS AREAS – 1980

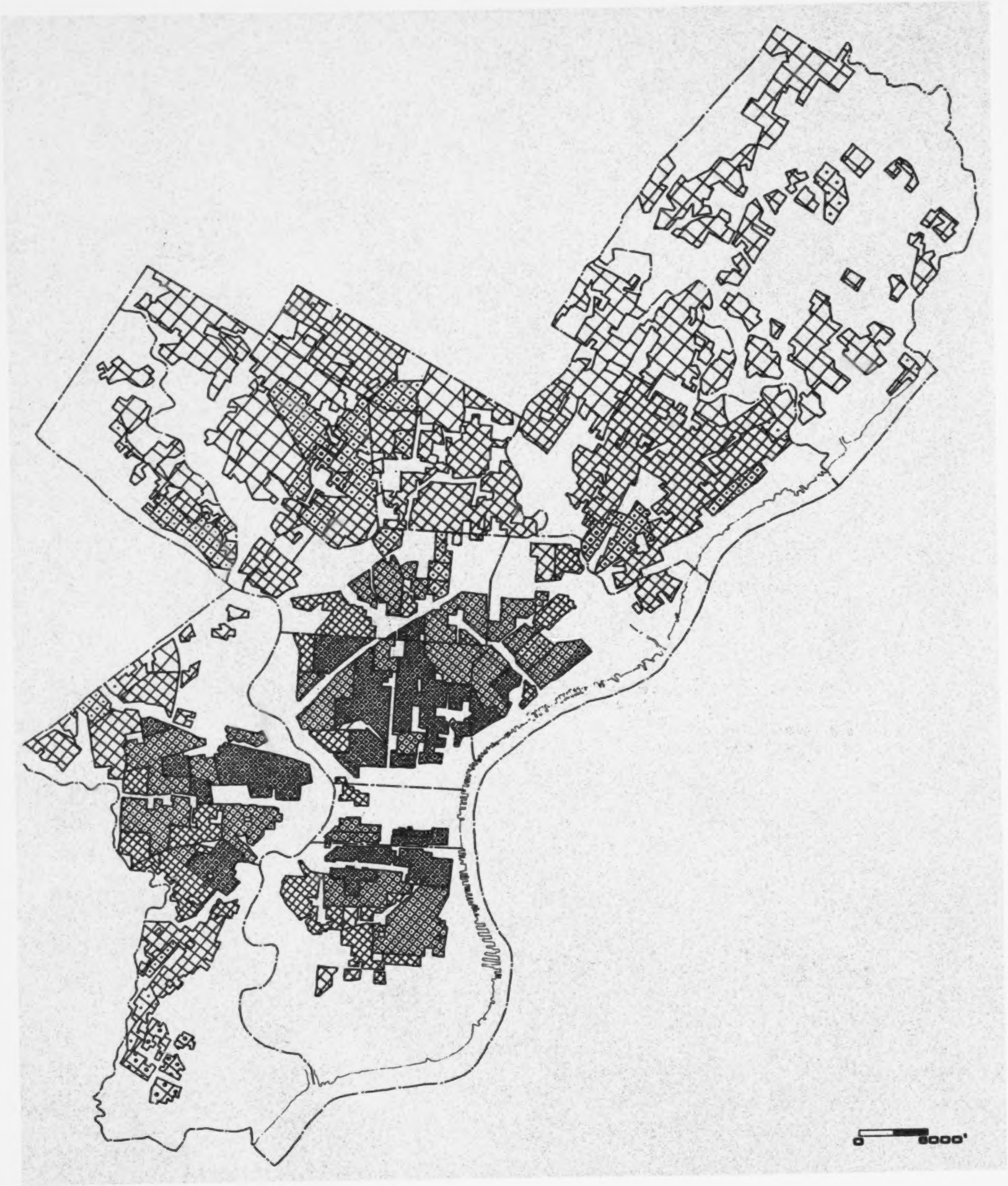
E ● ELEMENTARY
M ▲ MIDDLE
H ■ HIGH

BASED ON 1980 K-4-4 PROJECTED NEEDS FOR:

	STUDENTS
E	850
M	1200-1500
H	2250-2500

EXISTING FACILITIES – 1965 INDICATED IN FIRST COLUMN OF EACH BOX

□ FACILITIES TO BE PHASED OUT 1965/1980



Physical
Conditions Map
PHILADELPHIA, PA.

LEGEND

RESIDENTIAL DENSITY

▨ HIGH
▨ MEDIUM
▨ LOW

DETERIORATING UNITS

▩ 20 PER CENT & OVER
▨ 5 TO 20 PER CENT
— · — PLAN ANALYSIS AREA

Evaluating the 20-Park System

As part of the evaluation, we conducted an inventory of all potential large sites in Philadelphia with the help of both public and private agencies. These included both open land and sites that could be made available under the redevelopment process. A total of 53 potential sites were located, ranging in size from six to 100 acres.

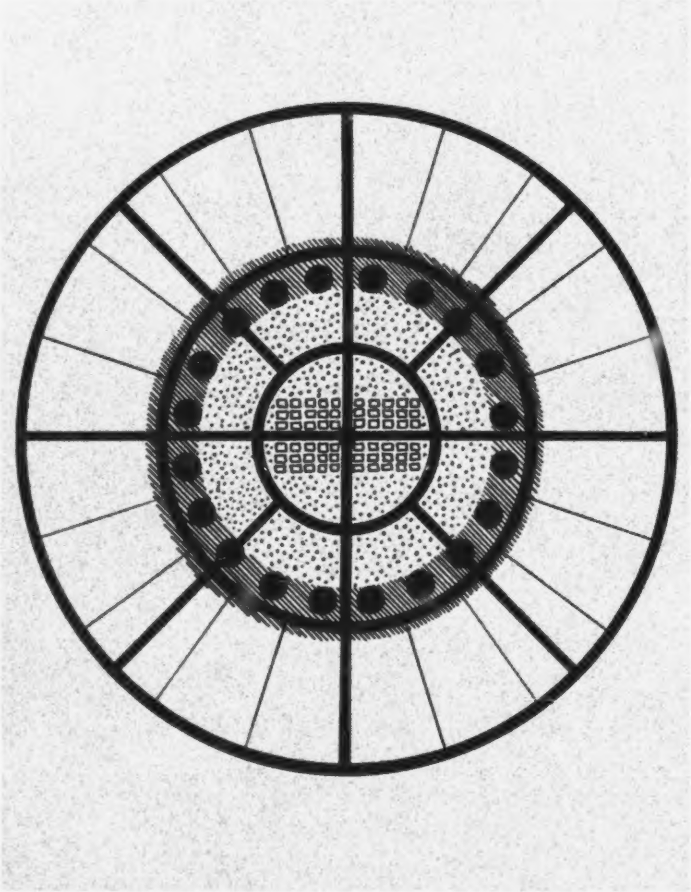
Two basic theoretical approaches were developed for the location of parks to meet the central objective of the 20-park proposal, that of school desegregation and integration.

The first, the circumferential pattern, involves a "belt" of parks around the predominantly non-white inner city. Under this arrangement, the park service areas are pie-shaped wedges in which non-white students move away from the center of the city and white students move toward the center to the education park. The second approach, the radial corridor pattern, reflects the more likely availability of sites. The purpose of this approach is to achieve racial balance while minimizing the problems of costly land acquisition and displacement which would probably accompany the circumferential pattern. The problem with the radial corridor pattern is that, compared with the circumferential approach, it would impose greater travel burdens on students.

Circumferential Pattern

LEGEND

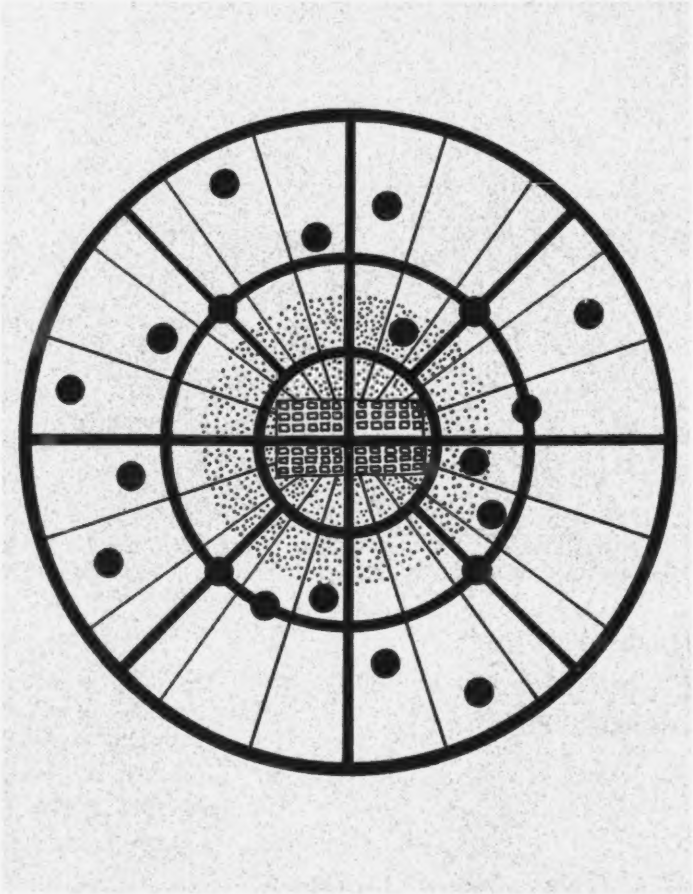
▬ MAJOR TRANSPORTATION
▦ CBD
▒ PREDOMINANTLY NON-WHITE
● EDUCATION PARK
— SERVICE AREAS
▨ BELT

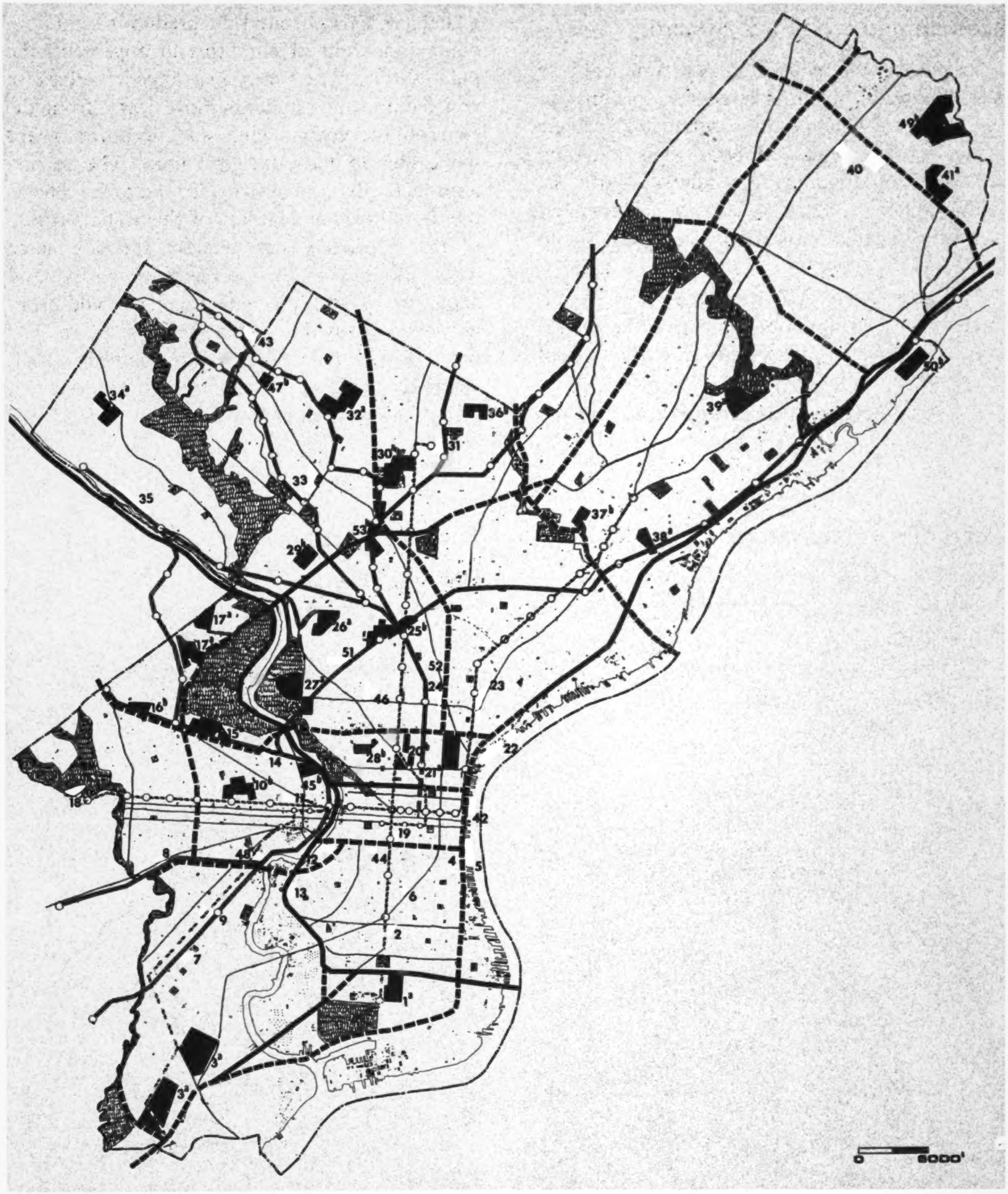


Radial Pattern

LEGEND

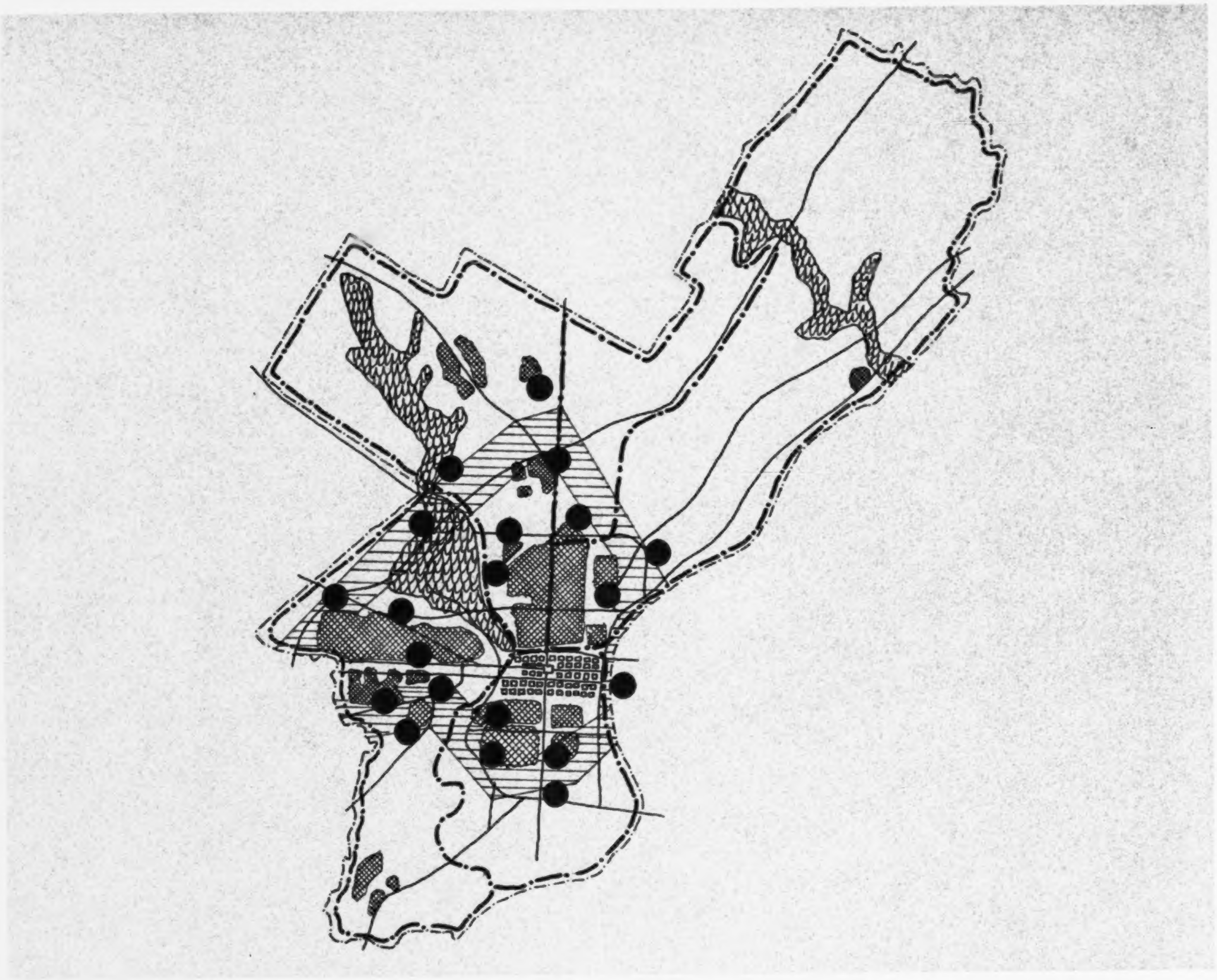
▬ MAJOR TRANSPORTATION
▦ CBD
☐ PREDOMINANTLY NON-WHITE
● EDUCATION PARK
— SERVICE AREAS




0
6000'

Inventory of Potential Sites
PHILADELPHIA, PA.

LEGEND
▬[a] 20-PARK PROPOSAL
▬[b] OTHER SITES MEETING 20-PARK PROPOSAL REQUIREMENTS
☐ OTHER SITES NOMINATED
▨ PARKS AND OPEN SPACE
EXPRESSWAYS
▬ EXISTING
-- PROPOSED
— MAJOR ARTERIALS
PUBLIC TRANSIT
---- SUBWAYS
---- COMMUTER LINES
-·- PLANNING ANALYSIS AREAS



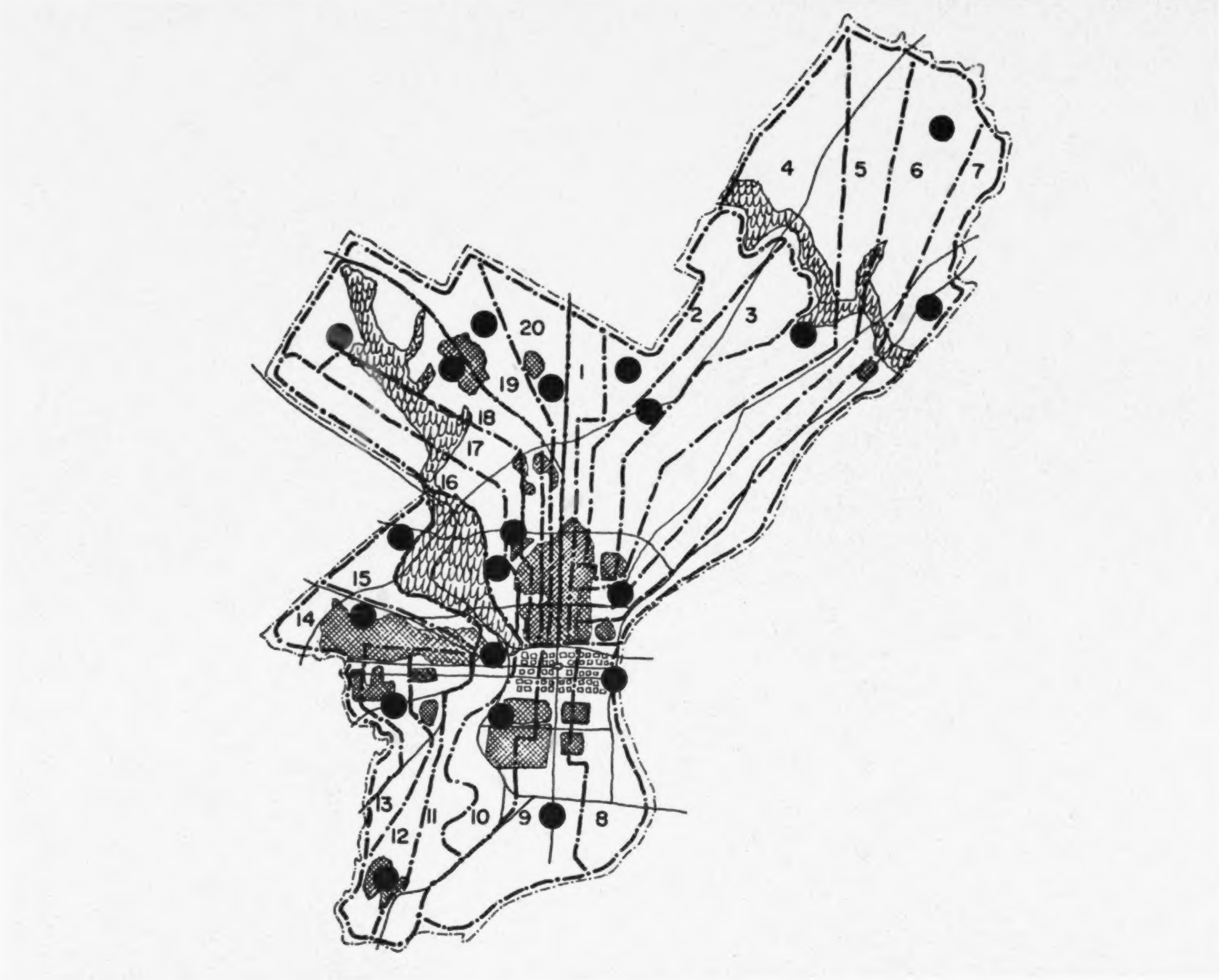
The Circumferential Pattern

This diagram shows the circumferential pattern in Philadelphia, adjusted to the available sites and major transportation corridors. Actually, only 17 sites could be located, and some of these were as small as six acres. Our planning studies determined that a minimum site standard of 60 acres was necessary. The 100-acre standard proposed by the Committee could be adjusted downward through roof terrace play areas or structured parking facilities. But even with this modification, 450 more acres of land would have to be added to the 760 acres that appeared available.

The problem of site availability notwithstanding, the circumferential pattern came closest to meeting the proposed 70-30 racial ratios of each park. The belt formed by the park sites was located in a ring which followed the city's racial distribution. The sites were convenient to major transportation routes, minimizing the travel time for students. The burden of transportation would fall mainly on white students. The principal disadvantage of this approach was, as the theoretical model suggested, high land costs; the sites were near the center of the city. Approximately 10,000 families would have had to be dislocated. Moreover, the pattern still required extensive bussing of elementary and middle school children at a cost conservatively estimated at $10,900,000 annually.

LEGEND

──	MAJOR TRANSPORTATION
▦	CBD (CENTRAL BUSINESS DISTRICT)
▩	PREDOMINANTLY NON-WHITE
●	EDUCATION PARK
—·—	EDUCATION PARK DISTRICT
▤	BELT
▨	MAJOR OPEN SPACE

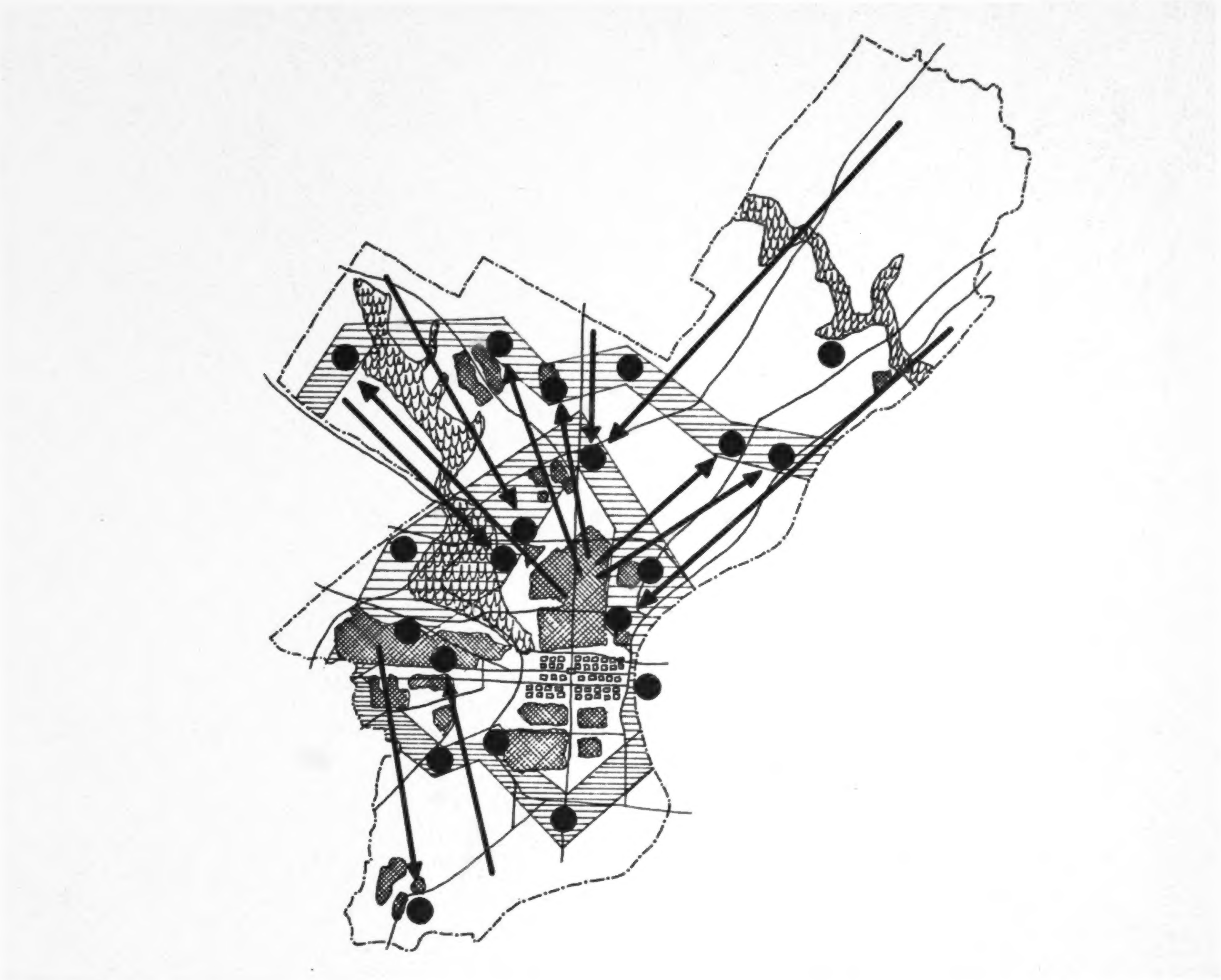


The Radial Pattern

This diagram shows the radial pattern in Philadelphia. Its purpose is to achieve the proposed racial balance while overcoming the inevitably high land costs of the circumferential pattern by using available open sites as much as possible. The necessary 20 sites are located at a significant saving over that of the circumferential pattern and with less family displacement (6,500 families versus 10,000). The problems of building on the available open land include, however, a substantial loss of convenience to students. To achieve the Committee's 70-30 balance, many children would have to bypass the park site closest to them and travel considerable distances to another. The bulk of the traveling would be done by Negro students. The necessary travel would be further complicated by the lack of main transportation routes to these park sites. Total annual bussing costs would be approximately $13,400,000. The question at this juncture was: How could the radial and circumferential patterns be modified to exploit the advantages of each?

LEGEND

— MAJOR TRANSPORTATION
▦ CBD
▒ PREDOMINANTLY NON-WHITE
● EDUCATION PARK
-·- EDUCATION PARK DISTRICT
▨ MAJOR OPEN SPACE

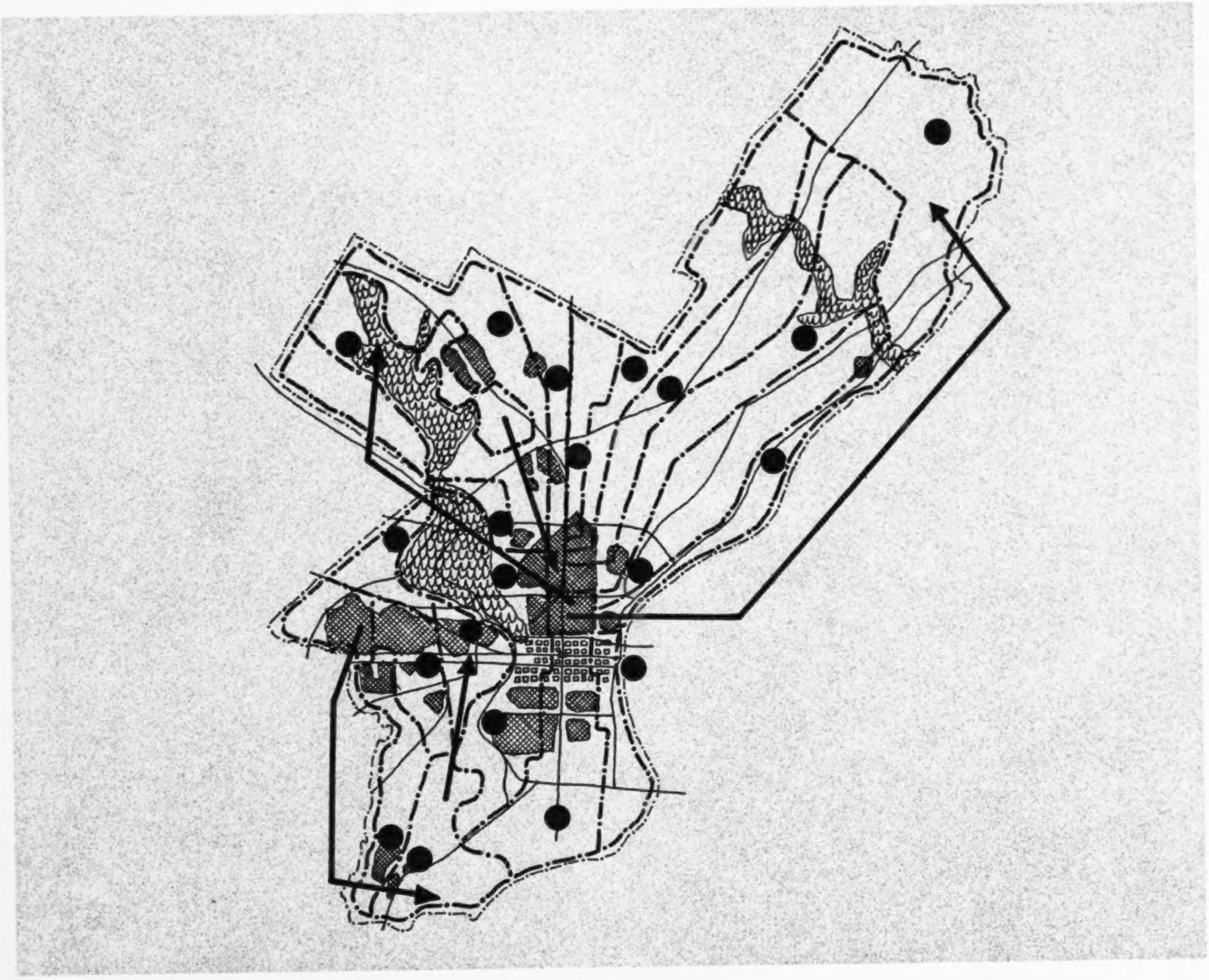


Modified Circumferential Pattern

Here is the circumferential pattern adapted to take greater advantage of available sites. The basic approach is to create two "belts" of parks. Under this alternative, it would still be possible to create racial balance. Many students would have to bypass the park nearest them, although not for the inconvenient distances required under the radial corridor plan. Further, because these sites are located closer to major transportation routes, the need for bussing would be somewhat lessened. The annual bussing cost under this modification would be about $10,100,000. The cost of site acquisition is slightly higher than under the radial plan. Approximately 6,000 families would have to be relocated.

LEGEND

—	MAJOR TRANSPORTATION
▦	CBD
▨	PREDOMINANTLY NON-WHITE
●	EDUCATION PARK
—·—	EDUCATION PARK DISTRICT
☐	BELT
▩	MAJOR OPEN SPACE
→	EXTRA DISTRICT BUSSING



The Modified Radial Pattern

This approach essentially involves breaking up the long corridors under the radial pattern to reduce some of the transportation, while still exploiting the maximum number of large, undeveloped sites.

Some children, mainly Negro, would have to take extremely long bus trips. Indeed, this approach would involve the highest annual bussing costs ($14,600,000). On the other hand, it would result in the lowest displacement and site-acquisition costs.

LEGEND

——	MAJOR TRANSPORTATION
▢▢▢▢▢▢	CBD
▨	PREDOMINANTLY NON-WHITE
●	EDUCATION PARK
—·—	EDUCATION PARK DISTRICT
▩	MAJOR OPEN SPACE
⟶	EXTRA DISTRICT BUSSING

Findings

The relative costs of the different park systems cannot serve as a basis for accepting or rejecting the idea. That decision can only be made on the basis of what the system does or promises to do. The process of planning a 20-park system uncovered some of the problems and limitations of the park idea. It also led to a number of individual studies on the planning, economics, educational programs, and racial integration of the park. As a result of these, we recommended against the park system. Perhaps the best way to outline the reasons is to summarize our findings as they relate to the three goals of quality education, integration, and economies which can be translated into advanced facilities.

Quality Education

We could neither dispute nor concur with the Committee's claim that the park would lead to higher educational quality in Philadelphia. Indeed, we have already indicated the difficulty of pinpointing the relationship of the park concept to quality.

"Quality" is a vague term with different meanings for different people. Earlier in this report, we charted the relationship of large size and consolidation to public education. We found advantages – the potential for vertical mobility, administrative decentralization, a continuum of teacher planning and guidance, and opportunities for in-service teacher education and increases in specialized non-academic and instructional space. We also found problems – the potential for congestion, rigid administration, and overwhelming size and design. How great the advantages are will depend on what the schools are already providing; as a general rule, we found that those advantages which the park does seem able to provide will not be strictly academic. It is hard for us to see how a park could provide significantly more educational advantages than already exist within many areas of Philadelphia. In some areas, however, the education park would be very useful.

The Philadelphia Committee is seeking a system to provide not only a higher level of quality, but a uniform level of equality. The Committee would prefer to see no differences among the parks – each offering the same benefits as the other, in a truly democratic school system.

It is an appealing idea, but a disturbing one as well. The uniformity sought in the system would detract from one of the advantages of the park – the potential for decentralization, giving park personnel the freedom to develop their own ideas, curriculum, and community involvement in light of the people and conditions in the school – not by fiat from above. To be sure, inequality is a weakness in many schools. But diversity is a strength, and diversity and inequality are not the same. There is more that we do not know about the education process than we do know. Teachers and administrators need freedom to innovate as well as to learn. **The *system* of parks, as proposed by the Committee, precluded this kind of pluralism and diversity.**

Desegregation and Integration

As far as desegregation is concerned, our studies in Philadelphia showed that the park suffers from many of the same frailties – on a larger scale – as does a small neighborhood school. Chief of these is that a school does not play the major determining role as to where people live. As a practical matter, schools often chase after the population rather than attracting it. The park has to contend with the given fact that Philadelphia, like most cities, is composed of ethnic enclaves. Fully 60 percent of the city's white public school population lives in the northeast area of the city, far from the inner-city areas where most of the non-white students live. Whether one uses a neighborhood school or a park to integrate these students, he is faced with large-scale transportation, and the park does not overcome the problem of awkward gerrymandering of attendance areas to achieve racial balance.

In the case of Philadelphia, as demonstrated in the various distribution patterns, one also encounters the awkward predicament of having to send children to a distant park when, in many cases, another park with an equal program is much closer and more convenient. There are communities in Philadelphia where one could build a park, draw a concentric, logical boundary, and achieve a racially balanced school population. But most community situations will require large-scale transportation and gerrymandering of boundaries to achieve the desired racial ratios.

The population distribution into ethnic enclaves is part of the broader picture of what is happening to Philadelphia's population. The available public school enrollment projections show a 68 percent non-white enrollment by 1980. The combined result of the sharp racial characteristics of housing patterns and the enrollment projections is that 16 of the 20 education parks would have 70 percent or more white or non-white students. In at least two parks, the non-white percentage would be closer to 80 percent.

This result of so massive a replacement program gave us pause, particularly in light of the findings on the effect of racial integration on student achievement covered in the *Equality of Educational Opportunity* report of the U. S. Office of Education. The report includes an elaborate statistical summary of the inequities existing between predominantly white and non-white schools, and, among other things, seeks to pinpoint the relationship between school integration and student achievement.

The implication of the report's data and the written summary of its findings show that the characteristics of the student body account for more variation in student achievement than either school facilities or staff. The benefits of racial integration are largely derived from, as the Office of Education's report puts it, ". . . the better educational backgrounds and higher educational aspirations that are on the average found among white students." The practical question then becomes how many students, white or non-white, of good educational background and high aspiration are required. The report sample shows that Negro students perform best in predominantly white schools and at poorer levels in predominantly Negro or all-Negro schools. These findings, plus the judgment of the consultants who worked on this report, indicate that the benefits of integration are most likely to occur in either predominantly white schools, or schools with approximately 50/50 white-non-white ratios.

"Expert opinion" is often divided on the effects and causes of school integration. *Equality of Educational Opportunity*, even if its findings were not so comprehensive or startling, would have become a landmark of scholarship simply because there has been so little comprehensive research on so critical a national issue as school desegregation.

One would be foolish to take these findings, as well as the opinion of our consultants, and declare that school desegregation is worthless unless it results in integrated schools with a majority white population. But in this study we are talking about an entire school system being replaced with parks, most of which would have non-white majorities. In such a case, the U. S. Office of Education's findings, plus the advice of our consultants, raised enough doubt in our minds to recommend against the Committee plan.

But even if there were no doubt about the wisdom of creating predominantly Negro education parks, there were other crucial questions mitigating against the park system as outlined by the Committee. While the "systems approach" inherent in the Committee proposal was intriguing, it did nothing to relate the Philadelphia schools to the broader needs of the community in terms of housing, neighborhood improvements, and other efforts to meet the needs of minority families, nor did it attack the root causes of segregation or take steps to achieve greater population stability. The insistence in the park plan of building nothing but large big-site schools restricted seriously the School District's ability to relate its planning and building to those of other agencies. Indeed, the systems approach, as proposed by the Committee, even minimized the potential role of the park as a regional facility.

Economy of Scale

The claim that the park could achieve significant economies in Philadelphia which can be translated into advanced facilities was borne out by our engineering analysis. We sought to find out how great these economies could be by taking the Philadelphia specifications for one senior high school, four intermediate middle schools, and four elementary schools, and determining what construction savings would accrue if these schools were built on one site. Using extremely conservative estimates of what space could be consolidated, how unit costs would decrease, and how architectural fees would be reduced, we estimated the construction cost for a single park arrangement to be $23,752,000 – as compared with $28,404,000 if the schools were to be built individually on separate sites. This was strictly an engineering analysis of the cost of construction, with no estimate of site cost, no effort to take additional specialized facilities into consideration, and no analysis of some of the complexities, such as parking, which a park would involve. What the analysis showed, in effect, was that park-scale construction in Philadelphia would result in an initial construction saving of $4,652,000 in the particular school grouping described. This $4,652,000 could, of course, be invested in additional specialized instructional space and facilities under such a scheme.

4

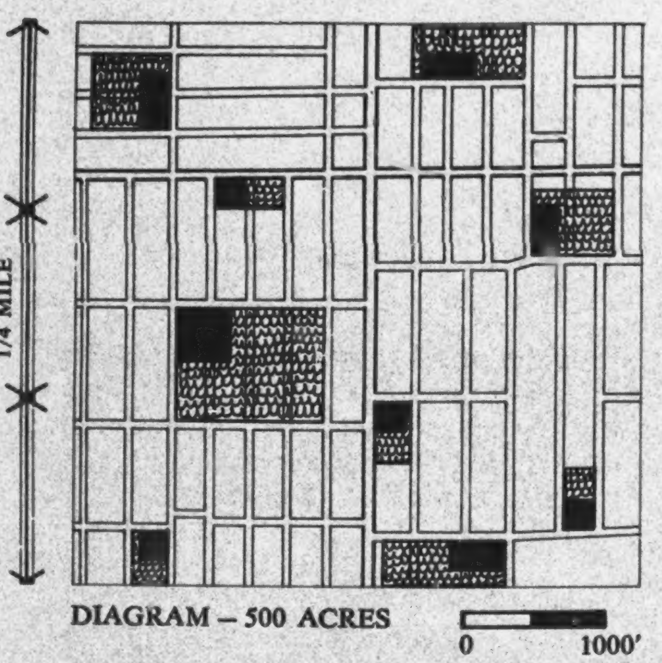
prototype park designs

Although we recommended against a flat commitment to a park system in Philadelphia, we discovered enough clear-cut benefits in the park concept to develop several park prototypes which could play a major role in Philadelphia's school construction program. In each case, we tried to suggest how the park's advantages could be accented and under what different social, economic, and planning situations the park could be used.

Philadelphia is big enough to present so many variations in characteristics that we can generalize about their applicability in other cities and situations. Indeed, we deliberately picked conditions in Philadelphia which were typical of those found in the other two study cities.

One of the great planning advantages of the education park is its potential to provide visual stress to the importance of the school in the community, as well as to provide for shared open space. The diagram (p. 42) shows how this advantage can be achieved by either *cluster* or *linear* development. Under the "scattered" concept of school location, i.e., the neighborhood school, school facilities are dispersed throughout a community with no interrelationship among schools and with inefficient use of the land.

A total of 65 acres is required for nine scattered-site schools. Utilizing the compact *cluster* plan, the same nine schools are brought together on a common site, sharing facilities and land,



Scattered Concept

Dispersed neighborhood schools with minimum walking distances.
Total land required for 4 elementary, 4 middle, 1 high school : 65 acres

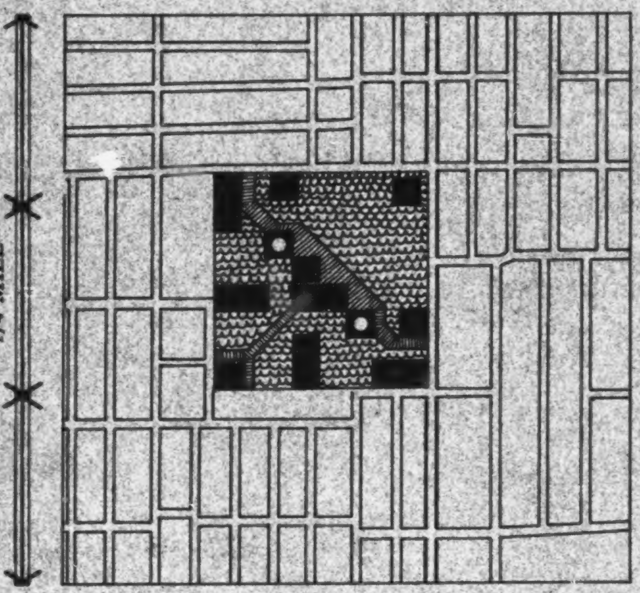
Gross residential density – 20 families/acre
Total child population – 20,000 persons
Percent child population not of school age and not attending public school – 30%
Public school enrollment – 13,000
Public school distribution
High – 2500 – 1 high school
Middle – 6500 – 4 middle schools
K-4 elementary – 4000 – 4 K-4 schools
Walking distances – (Phila. standards)
High school – 1 to 2 miles
Middle school – ½ to 1½ miles
K-4 elementary – ⅜ to ½ mile

and giving a strong focus to the school in the community. With this model, the convenience of the neighborhood school is preserved to a high degree and only 55 acres are required.

In the *linear* concept, the schools are connected by a strip containing 55 acres. Again, the schools are given high visibility and prominence, they share space, and they are strung along a community, or perhaps between two communities, leading to the possibility of joint housing or commercial development. The linear concept could be best applied along a significant transportation corridor.

Each of the following prototype designs illustrates one or a combination of these basic school-location concepts. The school unit sizes shown in the prototypes are 3,000 students for a four-year high school, 1,500 for the grade 5-8 middle school, and 1,000 for the elementary school. These numbers reflect what Philadelphia officials consider efficient school sizes.

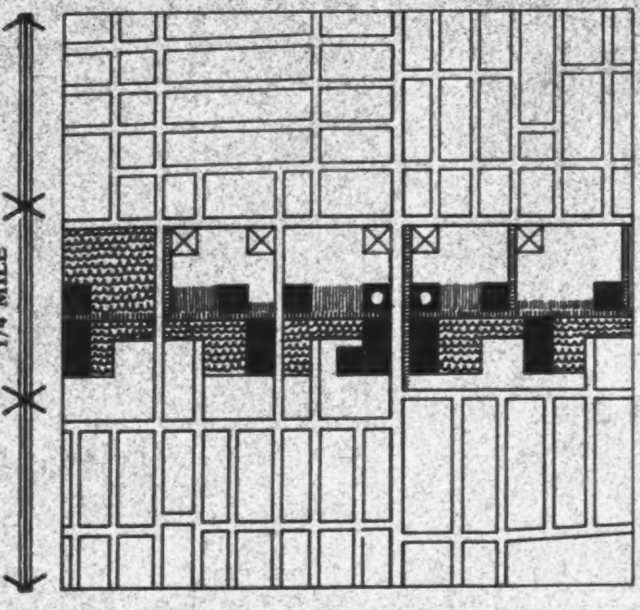
The prototypes which follow are designed for different urban land areas, starting in the dense inner-city location and moving outward toward the border areas where land is more readily available.



Compact Cluster Concept

The same schools clustered on single site.
Sharing of common functions.
Total land required – 55 acres.
Walking distance standards maintained.

EACH DIAGRAM – 500 ACRES



Linear Concept

Grouping of individual sites along linear strip permitting the sharing of common and more specialized functions; integration of park and other community facilities.
Total and required – 55 acres.

Satellite Core Park
(grades K-12)

As the urban population has spread outward from Center City, certain areas with very high accessibility have developed as intensive commercial and office centers, adjacent to major transportation terminals where commuter rail lines, subways, suburban bus facilities, and major arterials provide the means of moving from one mode of transportation to another. Their potential for an even more important role should be utilized. Such a satellite core provides a major opportunity for the development of a park complex, which illustrates the clustering concept of school location. Air rights, underutilized or obsolete industrial and institutional sites, and low-displacement urban renewal sites could be used. In addition, existing schools in surrounding residential areas could be connected to the park core.

The educational facilities associated with the core could include two high schools, a science center, and facilities for fine arts, performing arts, and administrative functions. High-rise commercial office and retail space, high-rise residential buildings and multi-level parking facilities would also be built. In addition, an industrial park research and science center would be associated with the core.

A network of recreational facilities and pedestrian ways, within the surrounding residential areas, would connect existing and new schools to the functions of the core.

This park would be located between predominately white and predominately non-white areas, of different income levels: joint use of the same facilities would contribute to community integration. Too, the high accessibility of the core facilities would make them available to a broad, diverse student body.

The strategy for development of this complex, which would utilize the accessibility and the existing private development, is the immediate construction, on available sites developed through air rights or through the clearing of obsolete industrial land, of major educational facilities near the existing nucleus. These public inputs, strategically located, would be catalysts for additional development, and for the implementation of the plan for the core as a major business, residential, transportational, and educational center.

0
2000′
commuter lines
industrial park
major arterial
rapid transit
middle income residential
expressway
commuter line
regional sports center
rehabilitation area
development area
new housing
schools
open space

SITE

Typical sites exist at strategic points in the city and region where commuter rail, rapid transit, local transit, and arterial streets converge. The sites are between lower density (upper income) areas and higher density (lower income) areas, with a broad service area permitted by high accessibility of site.

PARK PLAN

A complex of school and other functions developed with a new transportation center and connected by pedestrian walkways to existing schools in surrounding neighborhoods. Constructing the core schools first would stimulate development of the center which would relate inner city and outer sections.

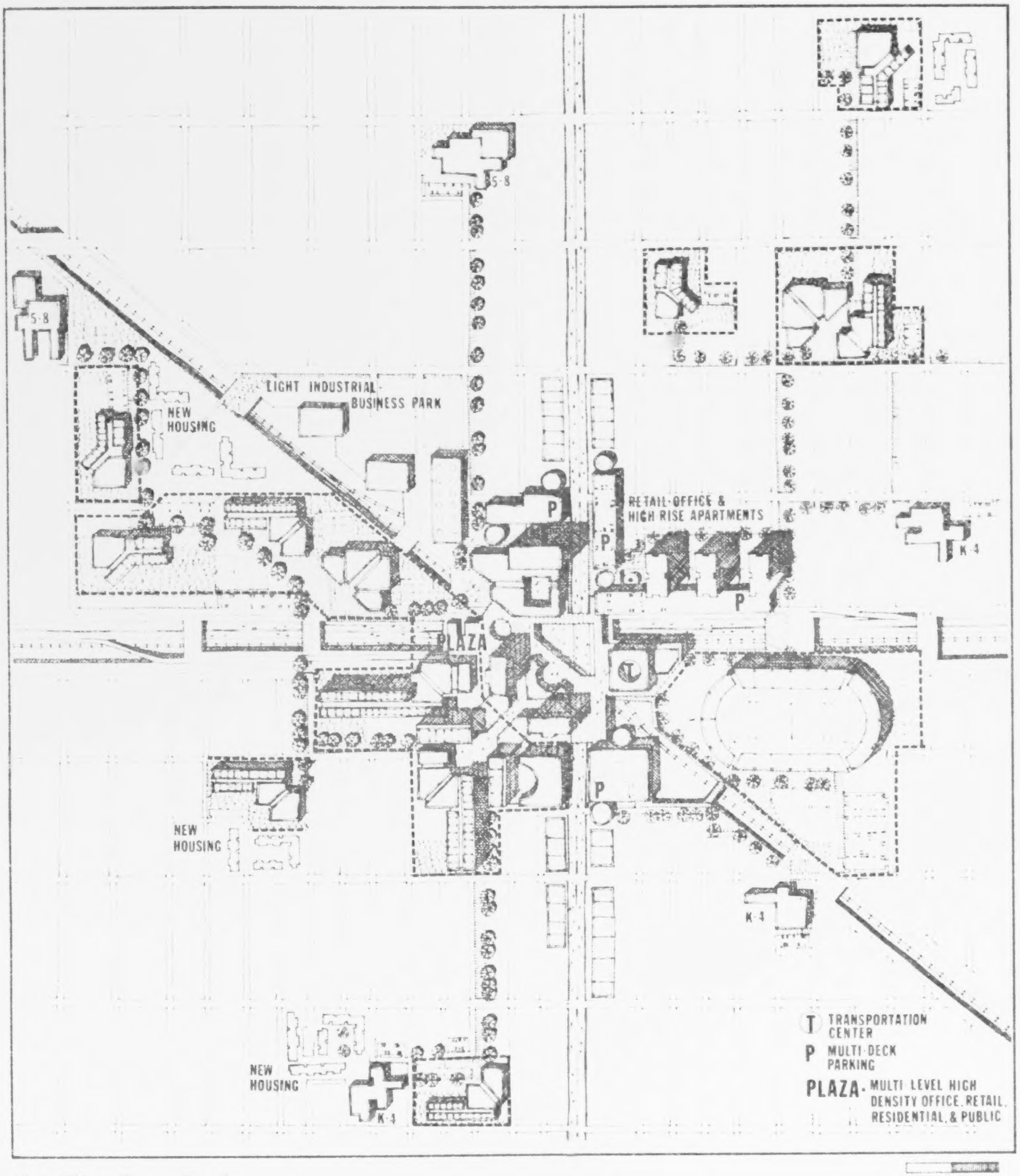
PARK COMPONENTS

2 High Schools	(Grades 9-12)	6,000 Students
2 Existing Middle Schools	(Grades 5-8)	
4 New Middle Schools	(Grades 5-8)	6,400 Students
3 Existing Elementary Schools	(Grades K-4)	
4 New Elementary Schools	(Grades K-4)	4,000 Students
New Facilities 10 Schools	Grades K-12	16,400 Students

Also included are specialized educational core facilities, parking for 2,000 cars in structures, a regional sports center, new high-rise residential and commercial structures, new retail centers, new transportation center, and new and rehabilitated housing in adjoining areas.

SATELLITE CORE PARK: SPACE AND ACREAGE IMPLICATIONS

	(GRADES 9-12)	(GRADES 5-8)	(GRADES K-4)	Totals
EXISTING SCHOOLS	--	--	4 ELEMENTARY	
NEW SCHOOLS	2 HIGH	4 MIDDLE	4 ELEMENTARY	
GENERAL				
UNIT SIZE	3,000	6,000	1,000	
NUMBER STUDENTS (NEW SCHOOLS ONLY)	6,000	6,400	3,000	15,400
BUILDING DENSITY	HIGH RISE FOR SPECIAL FACILITIES ONLY	3-4 STORIES	1-2 STORIES	
SERVICE AREA	BUS, AUTO, RAPID TRANSIT	WALK-IN, BUS, AUTO	WALK-IN, BUS-IN	
MAXIMUM WALKING DISTANCES	1-2 MILES	½-1 MILE	¼-½ MILES	
SITE REQUIREMENTS				
BUILDING COVERAGE AND RECREATION AND PLAY	15 ACRES	16 ACRES	10 ACRES	41 ACRES
REGIONAL INTER-SCHOLASTIC SPORTS CENTER (STADIUM, GYM, ATH. FIELDS)	15	8	4	27 ACRES
PARKING: TOTAL	(2150 SPACES, 80% IN STRUCTURES)			6 ACRES
FACULTY AND STAFF (1 SPACE/2 FACULTY)	150 SPACES	160 SPACES	100 SPACES	410 SPACES
STUDENTS (1 SPACE/5 STUDENTS)	1250 SPACES	--	--	1250 SPACES
SPORTS CENTER	500 ADDITIONAL SPACES			500 SPACES
NEW HOUSING	(DEPENDS UPON RENEWAL POSSIBILITIES)			(20 ACRES)
TOTAL SITE REQUIREMENTS (NOT INCLUDING NEW HOUSING)				74 ACRES


5-8
5-8
LIGHT INDUSTRIAL-BUSINESS PARK
NEW HOUSING
RETAIL-OFFICE & HIGH RISE APARTMENTS
P
P
P
P
K-4
PLAZA
T
NEW HOUSING
K-4
NEW HOUSING
K-4
T TRANSPORTATION CENTER
P MULTI-DECK PARKING
PLAZA - MULTI LEVEL HIGH DENSITY OFFICE, RETAIL, RESIDENTIAL, & PUBLIC
0
400′

Satellite Core Park

Legend
(PROTOTYPE DIAGRAMS)

MAJOR ACADEMIC FACILITIES

- ELEMENTARY SCHOOL (K-4) NEW 1000 STUDENTS
- ELEMENTARY SCHOOL – EXISTING
- MIDDLE SCHOOL (5-8) 1600 STUDENTS
- MIDDLE SCHOOL CORE CORE FACILITIES FOR TWO MIDDLE SCHOOLS
- HIGH SCHOOL (3000) 3000 STUDENTS

RECREATION AND PARKING

- SPORTS CENTER STADIUM, POOL, GYMNASIA, LOCKERS
- PARKING OPEN LOT
- PARKING STRUCTURE
- OUTDOOR PAVED AREAS – RECESS GAMES AND ACCESS
- OUTDOOR RECREATION AREAS

MAJOR CORE FACILITIES

- ARTS CENTER
- SCIENCE CENTER
- HUMANITIES CENTER
- MAIN LIBRARY AND INSTRUCTION MATERIALS CENTER
- ADMINISTRATION CENTER
- HIGHLY SPECIALIZED EDUCATION FACILITY

COMMUNITY RELATED FACILITIES

- LOCAL PUBLIC FACILITY
- SMALL COMMERCIAL
- COMMUNITY CENTER

University-Related Park
(grades K-12)

Each of the three study cities contains nationally prominent colleges or universities adjacent to minority ghettoes. These institutions are increasingly searching for ways in which they can change their role from that of outsiders to that of neighbors. This park design suggests, physically, how these schools can help uplift their areas and provide greater opportunities for the residents. From a planning standpoint, this is an example of the linear concept of school location.

The university-related park is located along a main transportation corridor of the city. It is highly accessible. Important core facilities and upper schools are concentrated at three major points along the transit line and are related to the college or university. This relation would allow the park to include some teacher education, an educational research center, university participation in curriculum planning and development, and utilization of university staff where appropriate.

As a result of its high accessibility, specialized facilities, and university relationship, the linear park could attract students from all over the city.

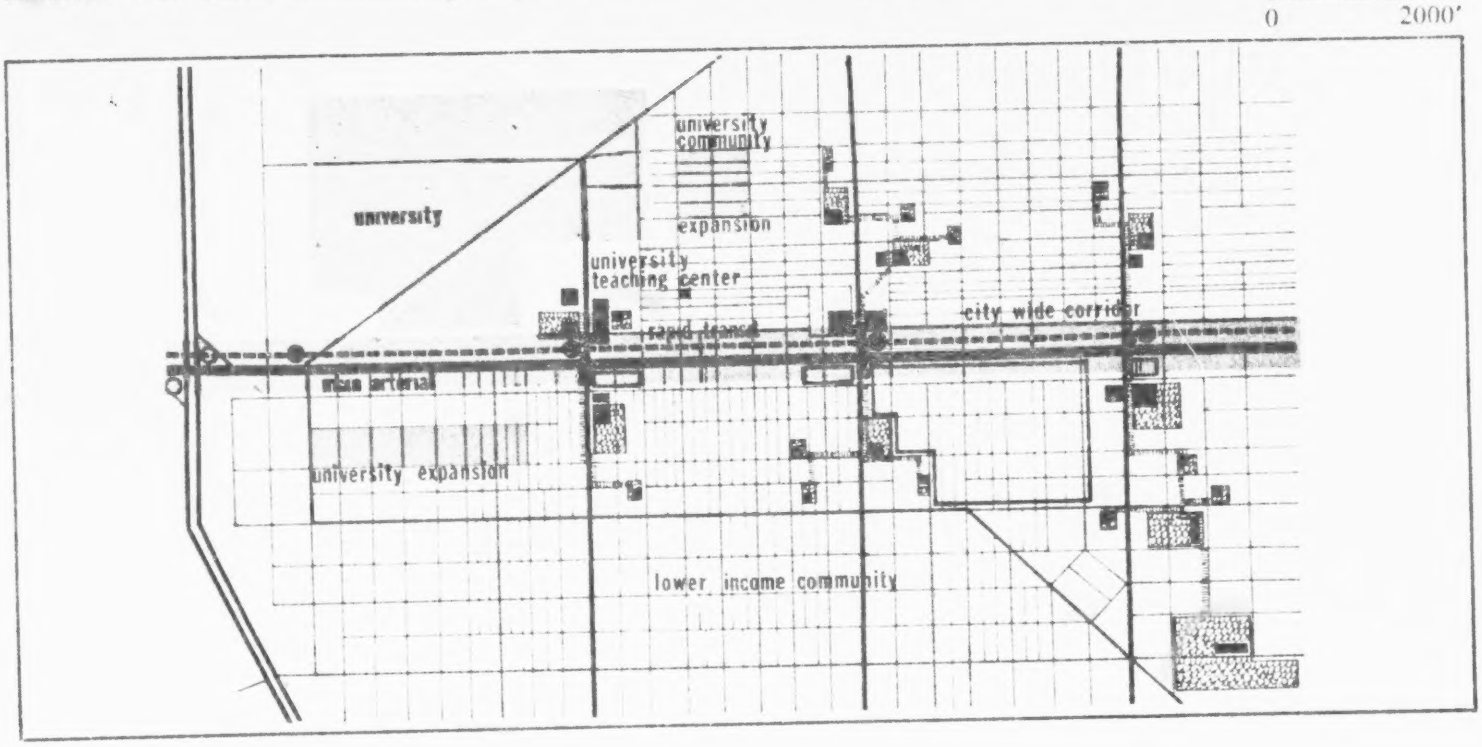
The park, which in this case would have a capacity of 16,400 students, is spread out in three smaller clusters along the transportation corridors. Each cluster has a particular educational focus—the humanities, science, or the arts. Two of the clusters contain comprehensive high schools. The third, immediately adjacent to the university, contains the administrative center of the park, a major teacher and educational research center, an arts center, and major core facilities for the entire park.

The middle and elementary schools are linked to the clusters with pedestrian walkways and are located within the adjacent communities. These would be logical locations for a variety of community facilities: health centers, employment training, local libraries, shopping areas, and other small-scale units.

The high residential densities (above 40 dwelling units per acre) and commensurate land costs would indicate high-rise development of facilities and the use of parking structures near the major transportation corridor. The overall plan would include the development of new housing and rehabilitation of older structures.

This plan shows one way in which the benefits of large park scale can be achieved in inner-city areas while avoiding a massive cluster, achieving intimate smaller units in a way which could be coordinated with selective neighborhood urban renewal approaches.

The broad objectives of this plan—its relationship to the university, the specialized educational facilities, the creation of community facilities, the economic stimulus of renewal, the combined school and housing construction, and the creation of a new land use and image for a "ghetto" area—would make such a plan feasible for a Model Cities project.



SITE

One larger site (20-40 acres) and several smaller sites (5-10 acres) parallel to a major transportation corridor (arterial street with underground subway) and connected to existing schools in surrounding neighborhoods. Major university located along corridor. Residential areas are higher density with generally lower-income, nonwhite population.

PARK PLAN

Centers of activity linked by transit and connected by pedestrian walkways with neighborhood schools. The renewal of the surrounding community, the creation of new mixed-density housing, and the relationship of the schools and university is stressed.

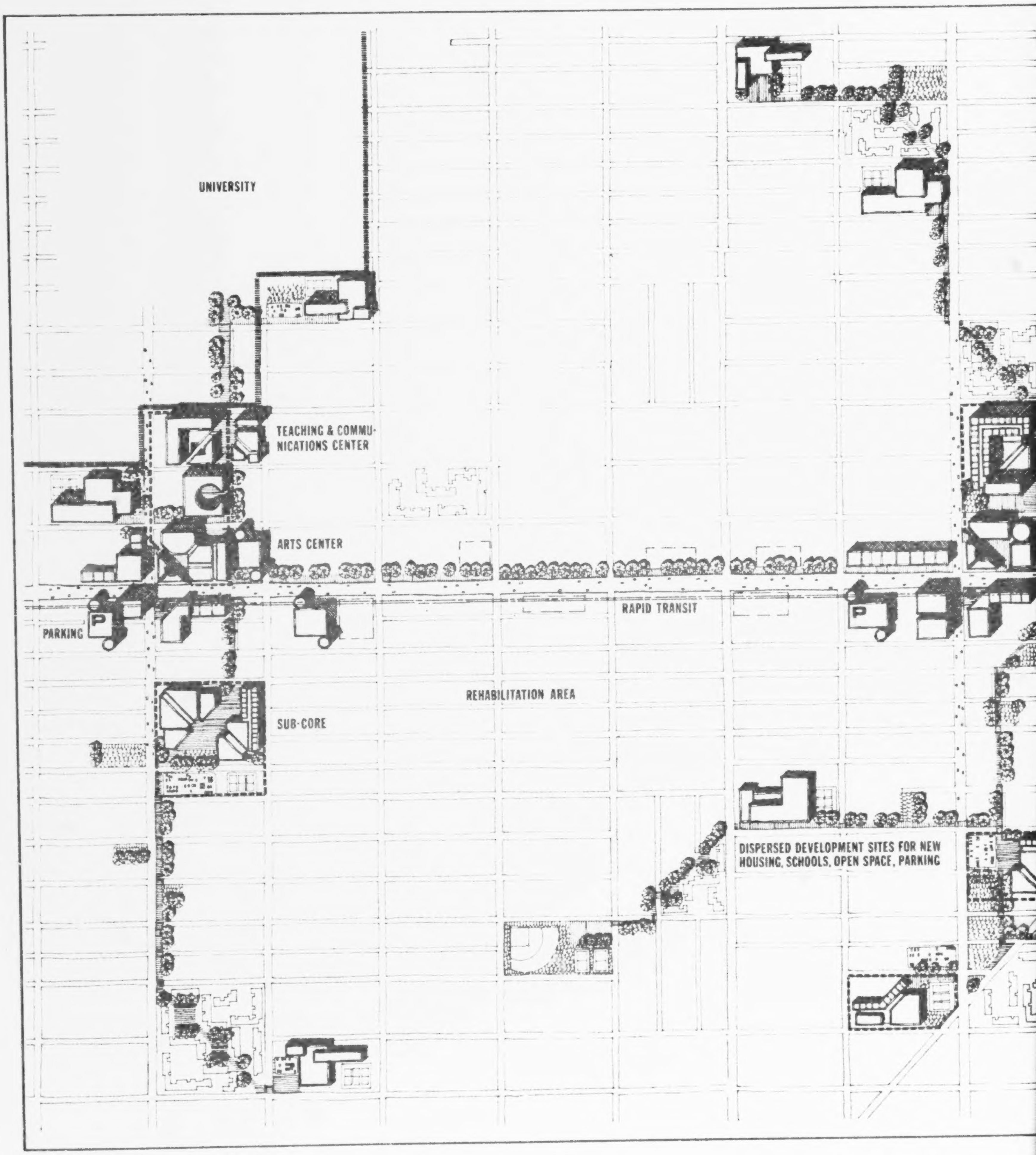
PARK COMPONENTS

2 High Schools	(Grades 9-12)	6,000 Students
4 Existing Middle Schools	(Grades 5-8)	
4 New Middle Schools	(Grades 5-8)	6,400 Students
6 Existing Elementary Schools	(Grades K-4)	
4 New Elementary Schools	(Grades K-4)	4,000 Students
New Facilities 10 Schools	Grades K-12	16,400 Students

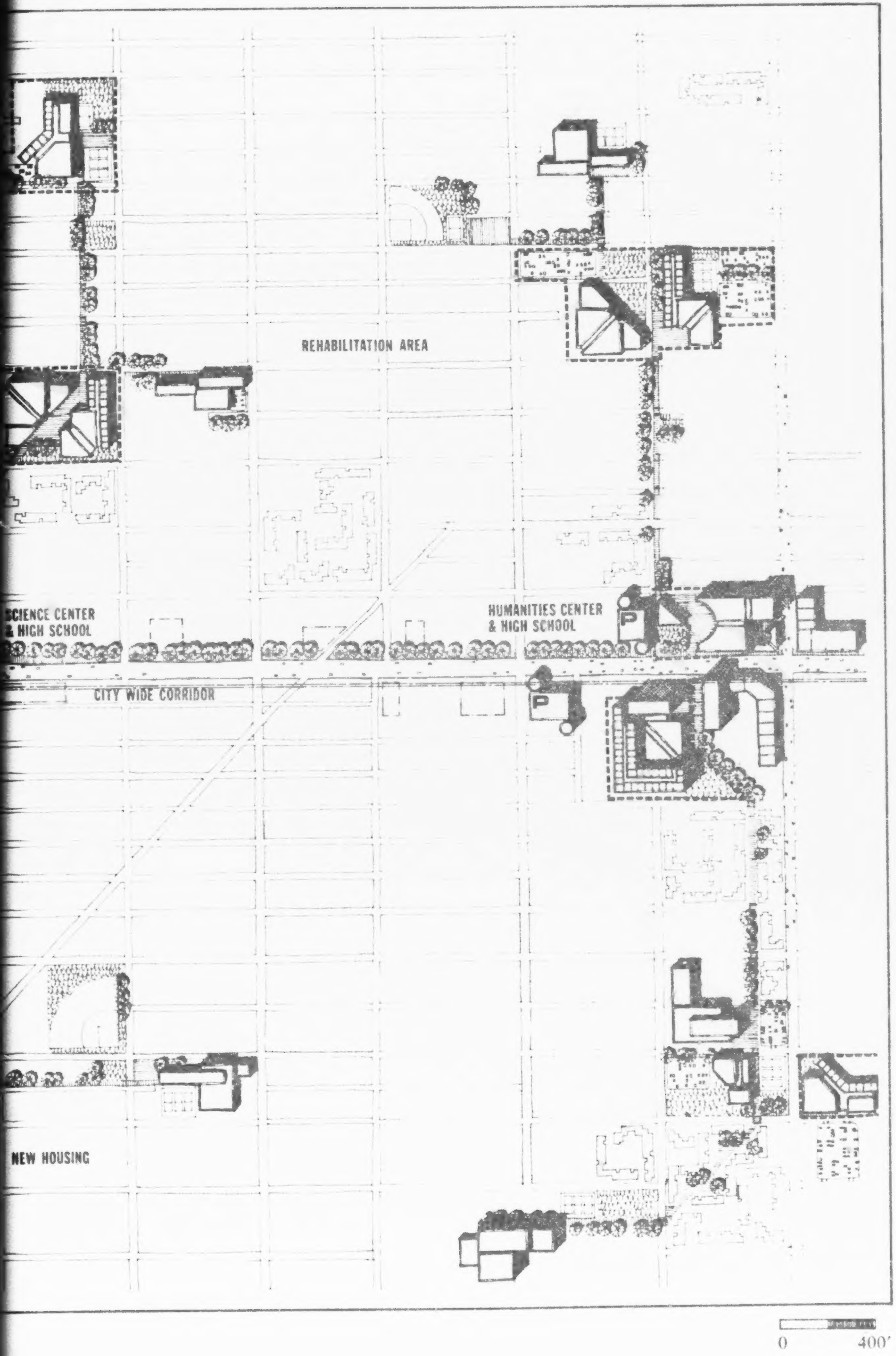
New specialized centers for arts, sciences, and humanities, at transit nodes, research center near university, new rehabilitated housing, new commercial and community facilities, parking for 1,610 cars in structures (near commercial facilities).

UNIVERSITY-RELATED LINEAR PARK: SPACE AND ACREAGE IMPLICATIONS

EXISTING SCHOOLS		4 MIDDLE	6 ELEMENTARY	Totals
NEW SCHOOLS	2 HIGH (GRADES 9-12)	4 MIDDLE (GRADES 5-8)	4 ELEMENTARY (GRADES K-4)	
GENERAL				
UNIT SIZE	3,000	1,600	1,000	
TOTAL NO. STUDENTS (NEW SCHOOLS ONLY)	6,000	6,400	4,000	16,400
SERVICE AREA	BUS, AUTO, RAPID TRANSIT	BUS, AUTO	PRIMARILY WALK-IN	
MAXIMUM WALKING DISTANCE	1-2 MILES	½-1 MILE	¼-½ MILE	
SITE REQUIREMENTS				
BUILDING COVERAGE AND RECREATION AND PLAY	16 ACRES	15 ACRES	9 ACRES	40 ACRES
SPORTS CENTER, TERRACE AND PLAY AREAS	DEPENDING ON ARCHITECTURAL SOLUTIONS			(40 ACRES)
PARKING: TOTAL	(1610 SPACES, 80% IN STRUCTURES)			6.5 ACRES
FACULTY/STAFF (1 SPACE/2 FACULTY)	150 SPACES	160 SPACES	100 SPACES	410 SPACES
STUDENTS (1 SPACE/5 STUDENTS)	1200 SPACES	--	--	1200 SPACES
TOTAL SITE REQUIREMENTS	(SCATTERED SITES ALONG MAJOR CORRIDOR:			46.5 ACRES
	TOTAL INCLUDING SPORT CENTER ETC.)			86.5 ACRES


UNIVERSITY
TEACHING & COMMUNICATIONS CENTER
ARTS CENTER
PARKING
P
P
RAPID TRANSIT
REHABILITATION AREA
SUB-CORE
DISPERSED DEVELOPMENT SITES FOR NEW HOUSING, SCHOOLS, OPEN SPACE, PARKING

University-Related Park


REHABILITATION AREA
SCIENCE CENTER & HIGH SCHOOL
HUMANITIES CENTER & HIGH SCHOOL
P
P
CITY WIDE CORRIDOR
NEW HOUSING
0
400′

Legend
(PROTOTYPE DIAGRAMS)

MAJOR ACADEMIC FACILITIES

- ELEMENTARY SCHOOL (K-4) NEW 1000 STUDENTS
- ELEMENTARY SCHOOL – EXISTING
- MIDDLE SCHOOL (5-8) 1600 STUDENTS
- MIDDLE SCHOOL CORE CORE FACILITIES FOR TWO MIDDLE SCHOOLS
- HIGH SCHOOL (3000) 3000 STUDENTS

RECREATION AND PARKING

- SPORTS CENTER STADIUM, POOL, GYMNASIA, LOCKERS
- PARKING OPEN LOT
- PARKING STRUCTURE
- OUTDOOR PAVED AREAS – RECESS GAMES AND ACCESS
- OUTDOOR RECREATION AREAS

MAJOR CORE FACILITIES

- ARTS CENTER
- SCIENCE CENTER
- HUMANITIES CENTER
- MAIN LIBRARY AND INSTRUCTION MATERIALS CENTER
- ADMINISTRATION CENTER
- HIGHLY SPECIALIZED EDUCATION FACILITY

COMMUNITY RELATED FACILITIES

- LOCAL PUBLIC FACILITY
- SMALL COMMERCIAL
- COMMUNITY CENTER

Community Center Park
(grades K-8)

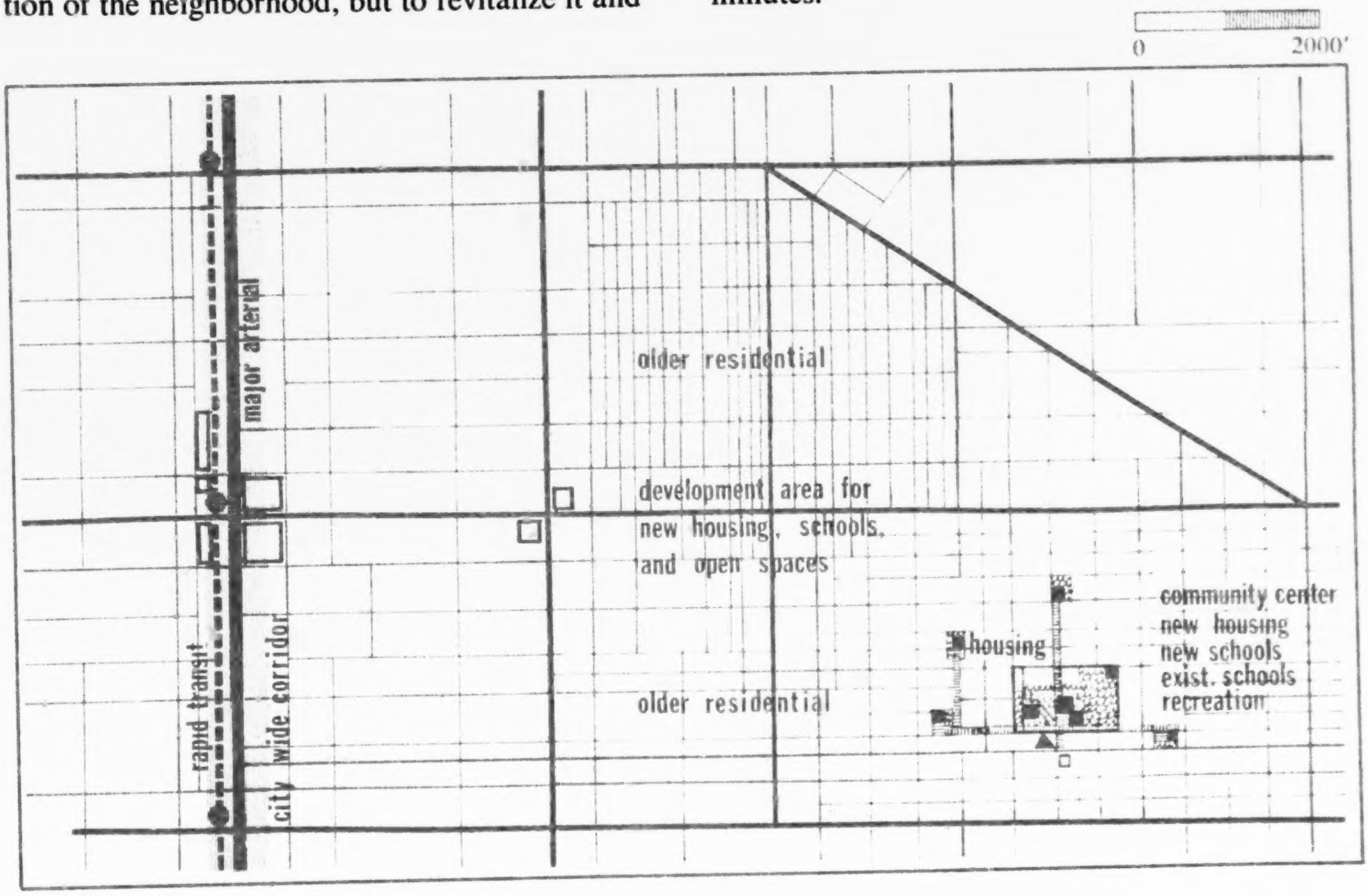
The park concept is sufficiently broad and the opportunities presented by large scale are sufficiently flexible for the park to be used in many different planning situations. The park need not always require massive development. It can be applied to the needs of just one community, and it can incorporate existing schools.

The community center park is envisioned for an older city neighborhood; it reflects a combination of the clustering and scattered-site concepts. It is in an established residential area with many large single and two-family homes. The population has been changing from older white middle- and upper-middle-income families to younger lower-middle-income families, many of them Negro. There is still a substantial population mix. The schools are old and often overcrowded, and there is a need for new school space as well as additions to some of the sound, older schools.

Here the park is designed to strengthen the role of the schools in the community. The park is seen as a reflection of the city's commitment not just to halt any decline in the physical condition of the neighborhood, but to revitalize it and to make residential integration work successfully.

Rather than scatter its school improvement efforts, be they for new schools or school additions, the city focuses its efforts on the park, where the total new space needs for the neighborhood are provided. The older schools, instead of having costly additions, are linked to the park with protected pedestrian malls. The space additions which would have been provided separately are consolidated in the park, together with new construction. In this case, it is a 5-8 middle school. The savings gained by consolidation would be used for specialized educational facilities in the central facility to be used by all the schools. The central or core facilities would serve also as the administrative and teaching center for all the schools. It would also house community-related facilities such as space for assembly and recreation areas, after-school programs, and possibly a library and facilities for senior citizens.

The broad objective of this plan is the creation of a network of schools sharing specialized space and community-related facilities at the core facility to which they are all connected. The maximum walking distance from any of the existing schools to the core facility would be ten minutes.



SITE

One larger site (20-30 acres) and several smaller sites, including existing schools, in a developed older residential area, where facilities require expansion and connection to one another, and where a strong center is required. Access is by secondary arterial.

PARK PLAN

The approach is appropriate where classroom additions to old schools, a new middle school, and two elementaries are needed. A center is created by concentrating community facilities, recreation, middle and elementary schools, and a new school to replace the additions, on the main site and linking this to the older schools. The plan provides a new community focus as well as new facilities by this connection.

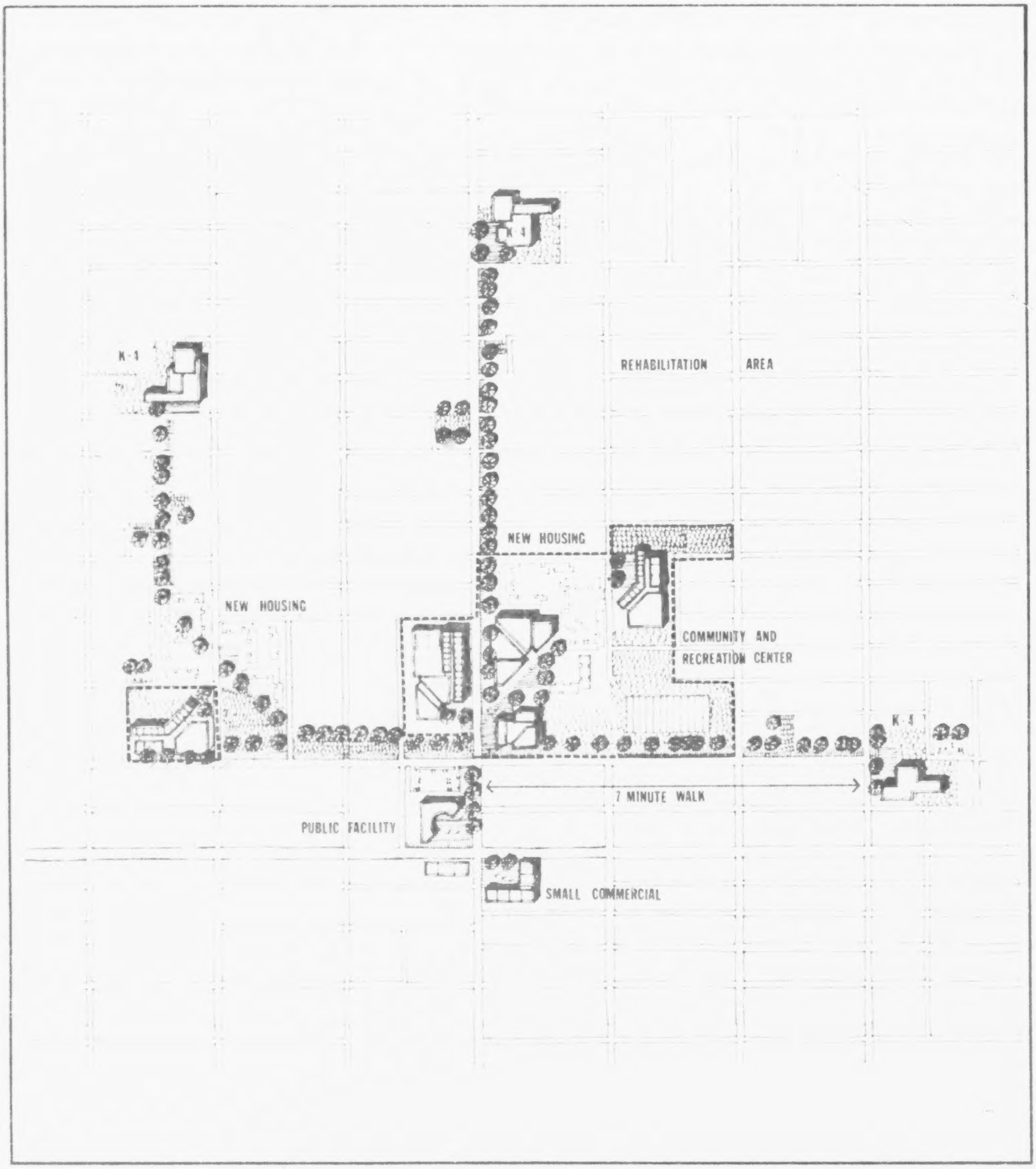
PARK COMPONENTS

Included are a neighborhood meeting and recreation center, 10-15 acres of new housing, special educational facilities, a combined city-school playfield development, other community facilities, and parking for 250 cars, partly in multilevel structures.

1 New Middle School	(Grades 5-8)	1,600 Students
3 Existing Elementary Schools	(Grades K-4)	
2 New Elementary Schools	(Grades K-4)	2,000 Students
New Facilities 3 Schools	Grades K-8	3,600 Students

COMMUNITY CENTER PARK: SPACE AND ACREAGE IMPLICATIONS

	(GRADES 5-8)	(GRADES K-4)	Totals
EXISTING SCHOOLS	(NOT IN PLAN)	3-ADDITIONS AND REHABILITATION REQUIRED	
NEW SCHOOLS	1	2	
GENERAL			
UNIT SIZE	1,600	1,000	
TOTAL NO. STUDENTS (NEW AND EXISTING	1,600	5,000	5,600
BUILDING DENSITY	2-3 STORIES	1-2 STORIES	
MAXIMUM WALKING DISTANCES	¾ MILE	⅜ MILE	
SERVICE AREA	WALK-IN, BUS-IN	PRIMARILY WALK-IN	
SITE REQUIREMENTS			
BUILDING COVERAGE AND RECREATION AND PLAY	7 ACRES	6 ACRES	13 ACRES
NEIGHBORHOOD CENTER AND RECREATION			5 ACRES
PARKING	(250 SPACES; 1 ACRE SURFACE AND 1 ACRE DECK IN CENTER)		2 ACRES
FACULTY AND STAFF (1 SPACE/2 FACULTY)	40 SPACES	75 SPACES	115 SPACES
STUDENTS	– –	– –	– –
NEIGHBORHOOD CENTER			100 SPACES
SUPPLEMENT TO EXISTING SCHOOLS			35 SPACES
NEW HOUSING DEVELOPMENT	(USING 8 ACRES OF LARGER SITE)		10 ACRES
TOTAL SITE REQUIREMENTS NEW FACILITIES AND HOUSING			30 ACRES


K-4
REHABILITATION AREA
K-4
NEW HOUSING
NEW HOUSING
COMMUNITY AND RECREATION CENTER
K-4
7 MINUTE WALK
PUBLIC FACILITY
SMALL COMMERCIAL

Community Center Park

0 400′

Legend
(PROTOTYPE DIAGRAMS)

MAJOR ACADEMIC FACILITIES

- ELEMENTARY SCHOOL (K-4) NEW 1000 STUDENTS
- ELEMENTARY SCHOOL – EXISTING
- MIDDLE SCHOOL (5-8) 1600 STUDENTS
- MIDDLE SCHOOL CORE CORE FACILITIES FOR TWO MIDDLE SCHOOLS
- HIGH SCHOOL (3000) 3000 STUDENTS

RECREATION AND PARKING

- SPORTS CENTER STADIUM, POOL, GYMNASIA, LOCKERS
- PARKING OPEN LOT
- PARKING STRUCTURE
- OUTDOOR PAVED AREAS – RECESS GAMES AND ACCESS
- OUTDOOR RECREATION AREAS

MAJOR CORE FACILITIES

- ARTS CENTER
- SCIENCE CENTER
- HUMANITIES CENTER
- MAIN LIBRARY AND INSTRUCTION MATERIALS CENTER
- ADMINISTRATION CENTER
- ● HIGHLY SPECIALIZED EDUCATION FACILITY

COMMUNITY RELATED FACILITIES

- LOCAL PUBLIC FACILITY
- SMALL COMMERCIAL
- COMMUNITY CENTER

Large-Scale Suburban Fringe Park
(grades K-12)

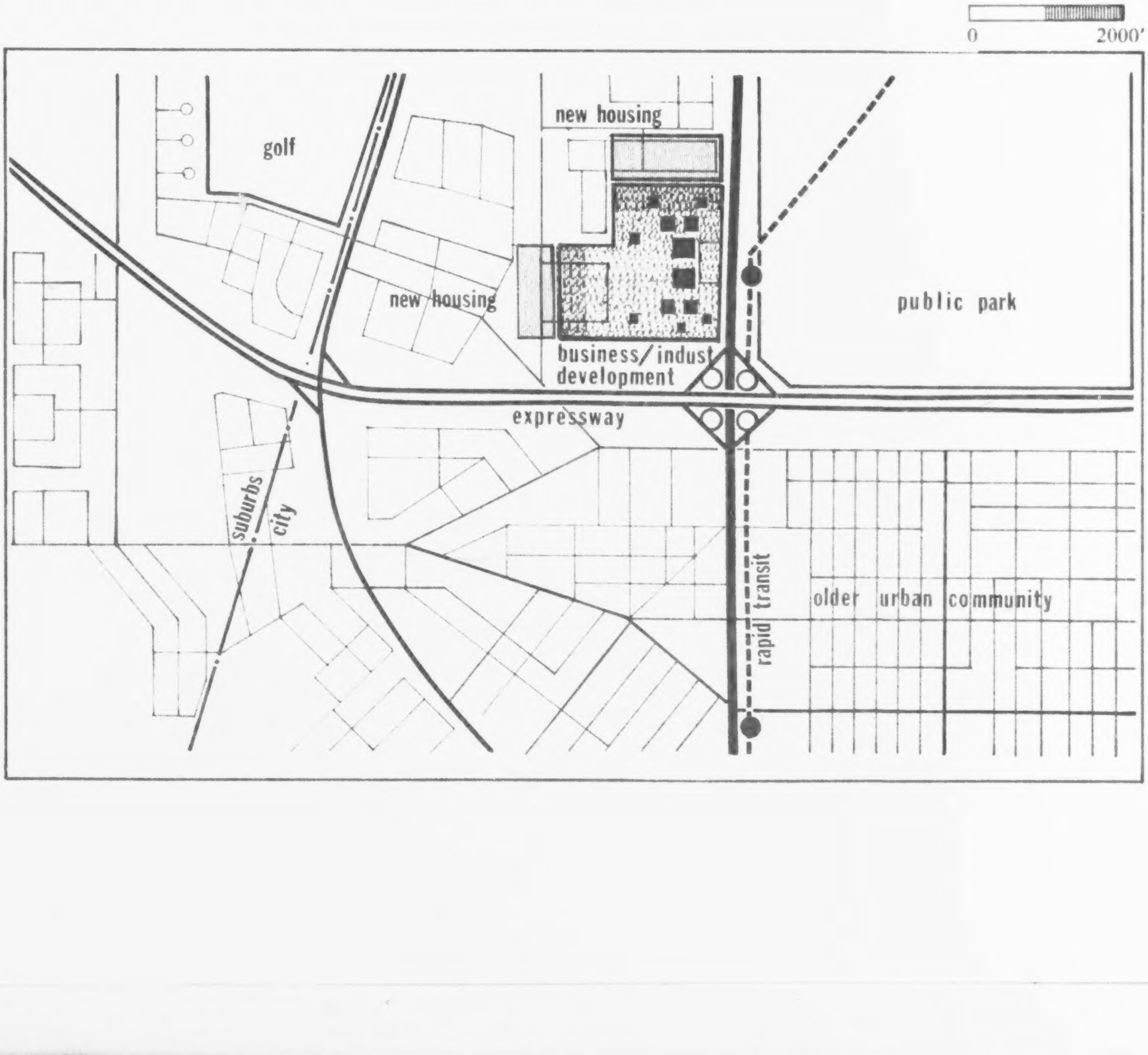
This park complex is a large concentration of clustered facilities on a single site on the outskirts of the city. In each of the three study cities, there are large tracts of relatively open land on which such a park could be located. Some of these would include an old estate now being subdivided, tracts undeveloped because of unusual terrain or poor subsoil conditions, or land poorly served by transit facilities. In this case, the site is envisioned as accessible by expressway, a major arterial interchange, and rail transit stops.

This is a large-scale park designed to serve diverse city neighborhoods, or to function as a regional facility, a role for which the park is especially well-suited. A regional park would offer the city a larger base for school integration. There would be two incentives for suburban co-operation: unusual educational opportunities, and the chance to lessen the growing financial burdens of schooling. The best financial incentive would be a substantial federal capital grant to cover much of the cost. In fact, federal support for regional parks would be one of the most effective ways for the national government to meet its integration commitments.

The park is envisioned as containing approximately 100 acres. Ten of these are devoted to new, mixed-density housing to appeal to a variety of income levels and to ensure diversity in the study population of the immediate area, particularly for the elementary schools. The park would be located within two or three miles of higher-income suburban sections, as well as lower-income city areas.

The plan includes a compact campus. At the heart of this campus is a specialized activity core in which facilities for the performing arts, fine arts, humanities, and sciences are located. Social services and school-community related functions are also housed in this core.

The higher grade levels would be adjacent to the core. Middle and elementary schools would fan out from it. The six elementary schools are located sufficiently away from the core to give the smaller children smaller schools and separate entrances.



SITE

Approximately 80-90 acres adjacent to rapid transit and expressway interchange (few such sites are available within city limits). Easy to reach from both densely populated inner city areas and higher income suburban sections.

PARK PLAN

A grouping of several schools on a highly accessible site with wide service area potential. Within this compact campus plan, identity of smaller scale units is stressed. The central facilities core is intensely developed and includes multi-level structures, with an "urban" feeling.

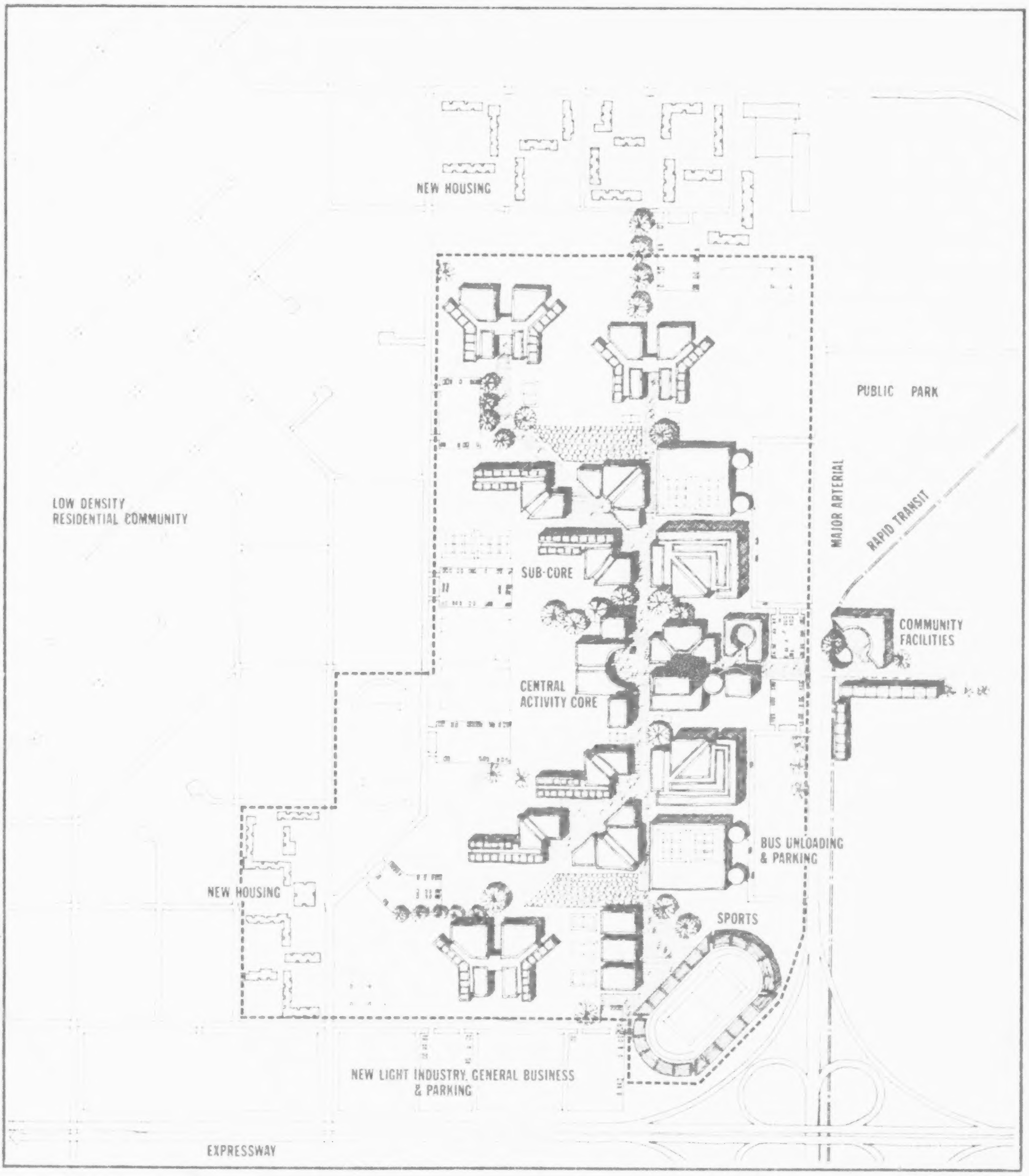
PARK COMPONENTS

2 High Schools	(Grades 9-12)	6,000 Students
4 Middle Schools	(Grades 5-8)	6,400 Students
6 Elementary Schools (Walk-in and Bussed)	(Grades K-4)	6,000 Students
12 School Units	Grades K-12	18,400 Students

Central core with special educational facilities, performing arts center, stadium, regional interscholastic sports center, 8 acres of new housing. Parking for 1,760 cars, of which 50% is in structures.

LARGE-SCALE SUBURBAN FRINGE AREA PARK: SPACE AND ACREAGE IMPLICATIONS

NEW SCHOOLS	2 HIGH (GRADES 9-12)	4 MIDDLE (GRADES 5-8)	3 ELEMENTARY (GRADES K-4)	Totals
GENERAL				
UNIT SIZE	3,000	1,600	1,000	
TOTAL NO. STUDENTS	6,000	6,400	6,000	18,400
BUILDING DENSITY	HIGH RISE FOR SPECIAL FACILITIES ONLY	3-4	1-2	
SERVICE AREA	BUS, AUTO, TRANSIT	BUS, AUTO	WALK-IN, BUS-IN	
SITE REQUIREMENTS				
BUILDING COVERAGE AND RECREATION AND PLAY	35 ACRES	22 ACRES	13 ACRES	70 ACRES
ROOF TERRACE PLAY	DEPENDS ON ARCHITECTURAL SOLUTION			
STADIUM				8 ACRES
PARKING: TOTAL	(1760 SPACES: 50% IN STRUCTURES)			10 ACRES
FACULTY AND STAFF (1 SPACE/2 FACULTY)	150 SPACES	160 SPACES	150 SPACES	460 SPACES
STUDENTS (1 SPACE/ 4.5 STUDENTS)	1300 SPACES	--	--	1300 SPACES
NEW HOUSING – MIXED DWELLING TYPES				8 ACRES
TOTAL SITE REQUIREMENTS				96 ACRES


NEW HOUSING
PUBLIC PARK
MAJOR ARTERIAL
RAPID TRANSIT
LOW DENSITY
RESIDENTIAL COMMUNITY
SUB-CORE
COMMUNITY
FACILITIES
CENTRAL
ACTIVITY CORE
BUS UNLOADING
& PARKING
NEW HOUSING
SPORTS
NEW LIGHT INDUSTRY, GENERAL BUSINESS
& PARKING
EXPRESSWAY
0
400′

Large-Scale Suburban Fringe Park

Legend
(PROTOTYPE DIAGRAMS)

MAJOR ACADEMIC FACILITIES

ELEMENTARY SCHOOL (K-4) NEW 1000 STUDENTS

ELEMENTARY SCHOOL – EXISTING

MIDDLE SCHOOL (5-8) 1600 STUDENTS

MIDDLE SCHOOL CORE CORE FACILITIES FOR TWO MIDDLE SCHOOLS

HIGH SCHOOL (3000) 3000 STUDENTS

RECREATION AND PARKING

SPORTS CENTER STADIUM, POOL, GYMNASIA, LOCKERS

PARKING OPEN LOT

PARKING STRUCTURE

OUTDOOR PAVED AREAS – RECESS GAMES AND ACCESS

OUTDOOR RECREATION AREAS

MAJOR CORE FACILITIES

ARTS CENTER

SCIENCE CENTER

HUMANITIES CENTER

MAIN LIBRARY AND INSTRUCTION MATERIALS CENTER

ADMINISTRATION CENTER

HIGHLY SPECIALIZED EDUCATION FACILITY

COMMUNITY RELATED FACILITIES

LOCAL PUBLIC FACILITY

SMALL COMMERCIAL

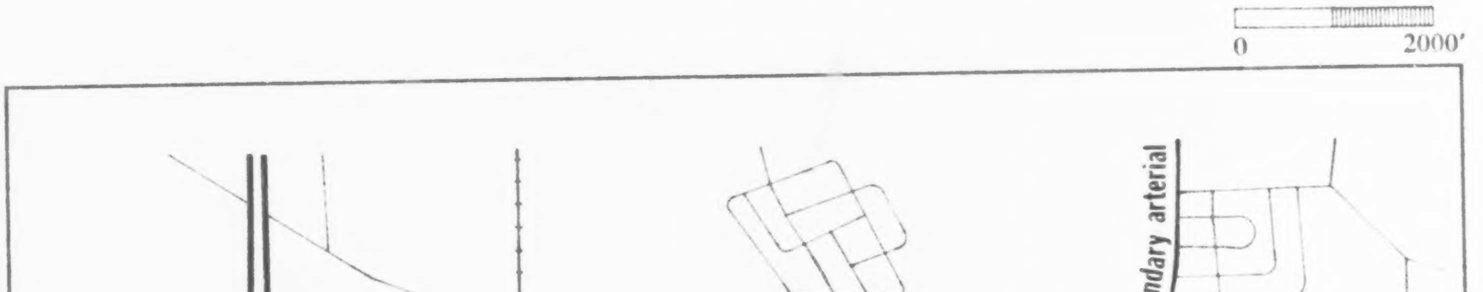
COMMUNITY CENTER

Medium-Sized Suburban Fringe Park

(grades K-12)

This is a slightly smaller park, again featuring the cluster plan. It would serve a partially suburban student body, with main emphasis on design integration with new town or scattered but large-scale housing developments. The site would have many of the same characteristics as the one for the large-scale park, except for high accessibility. It would be from two to four miles from an expressway interchange or transit stop. Accessibility would be primarily by automobile, and many of the children would come from adjacent residential communities. The newer residential areas would have housing of mixed density and income levels.

Here the park is viewed as a major focal point for a newly developing community. Community-related facilities, as well as educational facilities, are located in the core. The community facilities would include recreation, police, fire, and post office buildings, as well as a small sports stadium for community events and inter-school competitions. The theater, with a capacity of 2,500, would also be used for combined school-community activities. The design of the park includes small individual units and generous open space and parking provisions. Again, the older children are at the heart of things; the younger children are placed in small schools adjacent to the new housing.



SITE

Approximately 100 acres, largely vacant, available in outlying areas, surrounded by developing lower density residential areas with a predominantly white middle income population.

PARK PLAN

A campus plan with a strong central core and symbolic tower, in which park administration and community services would be located. The park becomes a major community center for this area, with possible cooperation with suburban schools accommodated in the plan.

PARK COMPONENTS

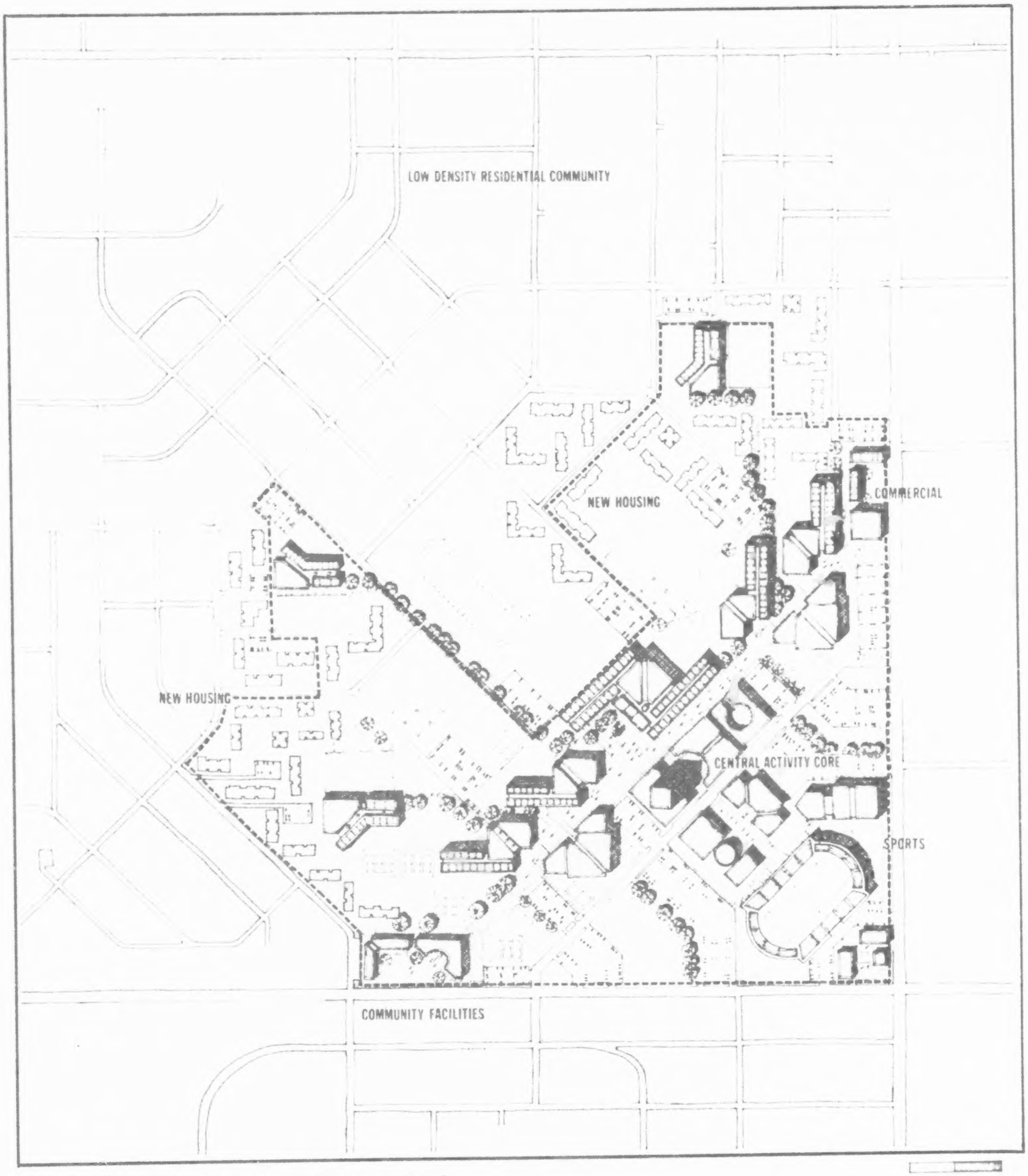
1 High School	(Grades 9-12)	3,000 Students
4 Middle Schools	(Grades 5-8)	6,400 Students
3 Elementary Schools (Walk-in)	(Grades K-4)	3,000 Students
8 School Units	Grades K-12	12,400 Students

Surface parking for 1,060 cars, small stadium, and community recreation center, other community activities, special educational facilities, and 30 acres of new mixed-density housing.

MEDIUM-SIZE SUBURBAN FRINGE PARK: SPACE AND ACREAGE IMPLICATIONS

NEW SCHOOLS	1 HIGH (GRADES 9-12)	4 MIDDLE (GRADES 5-8)	3 ELEMENTARY (GRADES K-4)	Totals
GENERAL				
UNIT SIZE[1]	3,000	1,600	1,000	
TOTAL NO. STUDENTS	3,000	6,400	3,000	12,400
AVERAGE BUILDING DENSITY	3-4 STORIES	2-3 STORIES	1-2 STORIES	
SERVICE AREA	WALK-IN, BUS, AUTO	WALK-IN, BUS, AUTO	WALK-IN, SOME BUS-IN	
SITE REQUIREMENTS				
BUILDING COVERAGE AND RECREATION AND PLAYFIELD	22 ACRES	28 ACRES	7.5 ACRES	57.5 ACRES
SMALL STADIUM	--	--	--	6 ACRES
PARKING: TOTAL				1060 SPACES (10 ACRES)
FACULTY AND STAFF (1 SPACE/2 FACULTY)	75 SPACES	160 SPACES	75 SPACES	310 SPACES (3 ACRES)
STUDENT (1 SPACE/4 STUDENTS)	750 SPACES			750 SPACES (7 ACRES)
NEW HOUSING DEVELOPMENT				30 ACRES
TOTAL SITE REQUIREMENTS				103.5 ACRES

[1] The unit size in this and all prototypes reflects economies of scale. It does not reflect any consideration of purely educational or social factors.


LOW DENSITY RESIDENTIAL COMMUNITY
NEW HOUSING
COMMERCIAL
NEW HOUSING
CENTRAL ACTIVITY CORE
SPORTS
COMMUNITY FACILITIES

Medium-Sized Suburban Fringe Park

0 400′

Legend
(PROTOTYPE DIAGRAMS)

MAJOR ACADEMIC FACILITIES

- ELEMENTARY SCHOOL (K-4) NEW 1000 STUDENTS
- ELEMENTARY SCHOOL – EXISTING
- MIDDLE SCHOOL (5-8) 1600 STUDENTS
- MIDDLE SCHOOL CORE CORE FACILITIES FOR TWO MIDDLE SCHOOLS
- HIGH SCHOOL (3000) 3000 STUDENTS

RECREATION AND PARKING

- SPORTS CENTER STADIUM, POOL, GYMNASIA, LOCKERS
- PARKING OPEN LOT
- PARKING STRUCTURE
- OUTDOOR PAVED AREAS – RECESS GAMES AND ACCESS
- OUTDOOR RECREATION AREAS

MAJOR CORE FACILITIES

- ARTS CENTER
- SCIENCE CENTER
- HUMANITIES CENTER
- MAIN LIBRARY AND INSTRUCTION MATERIALS CENTER
- ADMINISTRATION CENTER
- ● HIGHLY SPECIALIZED EDUCATION FACILITY

COMMUNITY RELATED FACILITIES

- LOCAL PUBLIC FACILITY
- SMALL COMMERCIAL
- COMMUNITY CENTER

5

a linear city for new york

The study in New York centered on five Brooklyn communities. New York is so large that, even when considering just five communities located within one of its five boroughs, the total population is city scale. Brownsville, Canarsie, Flatbush-East Flatbush, Midwood Flatlands, and East New York – the five communities in question – contain 725,257 people. That would make the area, known as East Central Brooklyn, a principal U. S. city – larger than Boston, for instance.

Within the area, one can find the diversity in people, buildings, and geography which make for a city. It has a waterfront, ghetto tenements, large commercial areas, single-family homes, apartments, industry, open space, and major transit facilities. It also has many important city institutions, including Brooklyn College.

A brief profile of the area will help in understanding its school needs and the setting in which the education park was under consideration. Following is a very brief statistical summary of each community, intended only as a general guide for the reader unfamiliar with East Central Brooklyn.

Brownsville

(1960 population, 123,073)

Of all East Central Brooklyn's communities, Brownsville has experienced the most dramatic changes in the racial composition of its population. Its housing and community facilities are in poor condition. During the decade 1950-1960, Brownsville lost 38 percent of its white population, and had a sharp rise in its Negro and Puerto Rican population. As a result, by 1960, 57 percent of its population was white and the remaining 43 percent was Negro or Puerto Rican. That the trend has continued is indicated by the fact that only 10 percent of the resident births in 1965 were white.

PUBLIC ELEMENTARY SCHOOL POPULATION: BROWNSVILLE

GRADES	K-5	K-6
NUMBER OF SCHOOLS	5	8

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	16,428	29.4	70.6
1963	16,024	19.5	80.5
1965	16,408	9.6	90.4

PUBLIC JUNIOR HIGH SCHOOL POPULATION: BROWNSVILLE

GRADES	6-8	7-9
NUMBER OF SCHOOLS	2	1

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	3,662	30.9	69.1
1963	3,376	22.7	77.3
1965	4,527	20.3	79.7

Canarsie

(1960 population, 61,181)

During the period 1950-1960, Canarsie had a significant increase in population. The trend has held, largely as a result of the continued construction of middle-income housing. Overall population jumped by 58.5 percent during the past decade. The area is predominantly white. In 1955, 84 percent of all resident births were white; by 1965, this figure had climbed to 91 percent.

The elementary and junior high school enrollments reflect the predominantly white racial composition.

PUBLIC ELEMENTARY SCHOOL POPULATION: CANARSIE

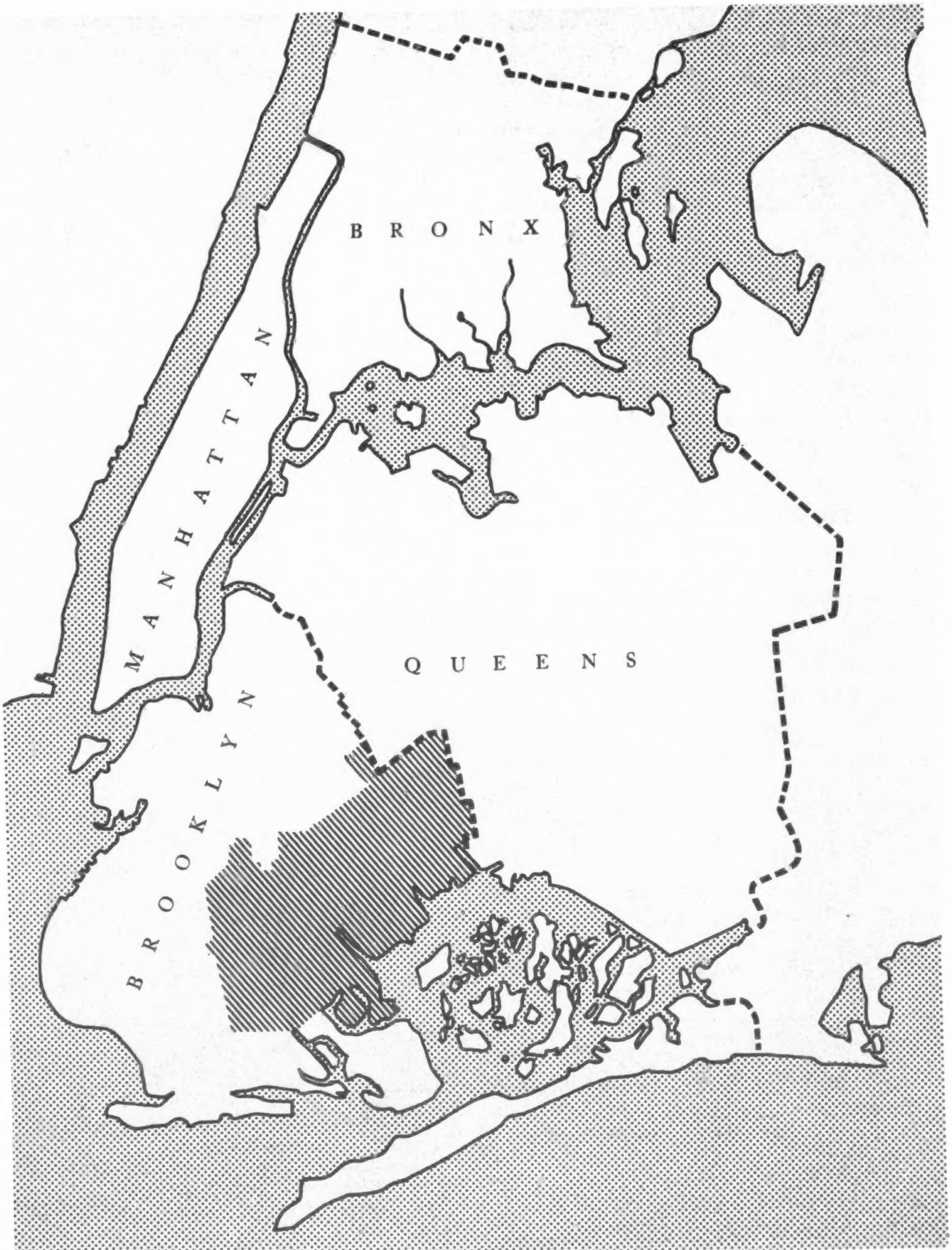
GRADES	K-6
NUMBER OF SCHOOLS	8

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	8,858	86.5	13.5
1963	9,414	88.0	12.0
1965	10,171	85.5	14.5

PUBLIC JUNIOR HIGH SCHOOL POPULATION: CANARSIE

GRADES	7-9
NUMBER OF SCHOOLS	2

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	2,458	89.7	10.3
1963	1,869	81.4	18.6
1965	3,844	84.6	15.4


BRONX
MANHATTAN
QUEENS
BROOKLYN

Area Studied in the Development of the Linear City Plan is Indicated by Shaded Portion

Flatbush-East Flatbush

(1960 population, 238,232)

This community is showing some changes in its population composition. From 1950-1960, it lost approximately six percent of its population and had a slight increase (1.7 percent) in its Negro and Puerto Rican population. Resident births show a continuing pattern of white losses. In 1955, 97.6 percent of the births were white; in 1954, 85 percent were white.

The educational demographic situation indicates still sharper losses in the white population, but much of this loss stems from the fact that Flatbush receives non-white students from other communities.

PUBLIC ELEMENTARY SCHOOL POPULATION:
FLATBUSH-EAST FLATBUSH

GRADES	K-5	K-6	K-8
NUMBER OF SCHOOLS	3	10	2

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	15,276	81.6	18.4
1963	15,354	81.0	19.0
1965	14,241	78.1	21.9

PUBLIC JUNIOR HIGH SCHOOL POPULATION:
FLATBUSH-EAST FLATBUSH

GRADES	6-8	7-9
NUMBER OF SCHOOLS	1	2

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	5,219	93.0	7.0
1963	5,519	80.6	19.4
1965	4,857	69.0	31.0

Midwood-Flatlands

(1960 population, 145,913)

This area of East Central Brooklyn is the most stable of those we studied. It experienced a two percent gain in population during the 1950-1960 period, and its 1960 population was 99.2 percent white. From 1955 to 1965, there was a slight drop in white resident births – from 98.8 precent to 97.7 percent.

PUBLIC ELEMENTARY SCHOOL POPULATION:
MIDWOOD-FLATLANDS

GRADES	K-5	K-6	K-8
NUMBER OF SCHOOLS	2	5	1

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	10,026	98.9	1.1
1963	10,853	97.3	2.7
1965	10,142	91.3	8.7

PUBLIC JUNIOR HIGH SCHOOL POPULATION:
MIDWOOD-FLATLANDS

GRADES	6-8	7-9
NUMBER OF SCHOOLS	1	2

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	3,315	98.6	1.4
1963	4,339	97.9	2.1
1965	5,703	95.9	4.1

East New York

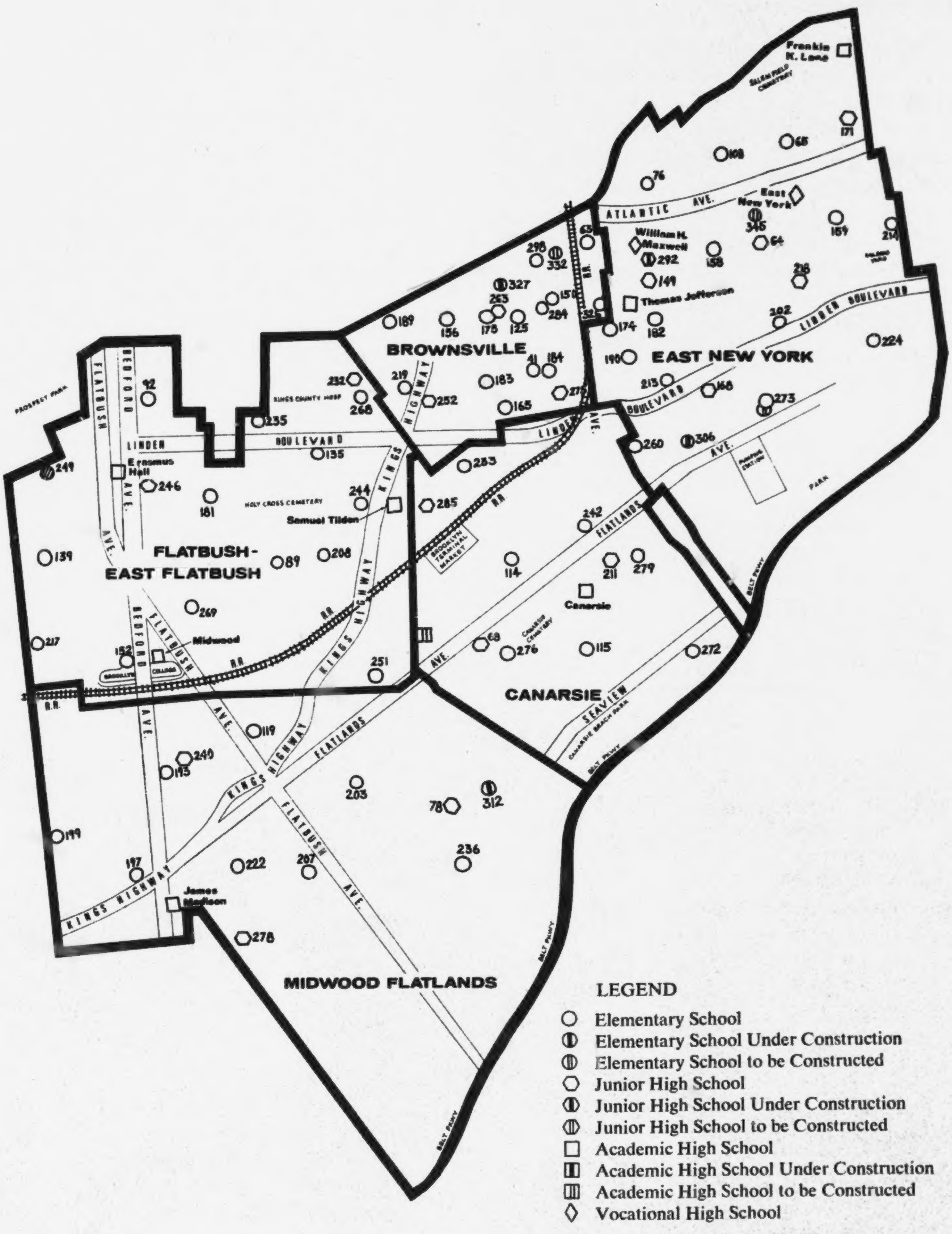
(1960 population, 156,858)

East New York is possibly the least stable of the five communities. The population shifts during the decade 1950-1960 only hinted at the more accelerated changes which have occurred since. The total population dropped by 1.6 percent in the 1950-1960 period. At the same time, the white population dropped from 98.2 percent to 88.4 percent of the total. The resident births show a drop from 90.5 percent white in 1955 to 38.7 percent white in 1965. This is an area where a good deal of new housing construction will be taking place.

PUBLIC ELEMENTARY SCHOOL POPULATION:
EAST NEW YORK

GRADES	K-5	K-6
NUMBER OF SCHOOLS	5	9

YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	15,314	64.2	35.8
1963	17,101	49.2	50.8
1965	18,525	33.1	66.9


BROWNSVILLE
EAST NEW YORK
FLATBUSH-
EAST FLATBUSH
CANARSIE
MIDWOOD FLATLANDS
Franklin K. Lane
Salem Field Cemetery
East New York
William H. Maxwell
Thomas Jefferson
Erasmus Hall
Samuel Tilden
Midwood
Brooklyn College
Canarsie
James Madison
Prospect Park
Kings County Hosp
Holy Cross Cemetery
Brooklyn Terminal Market
Canarsie Cemetery
Canarsie Beach Park
Pumping Station
Park
ATLANTIC AVE.
LINDEN BOULEVARD
FLATBUSH AVE.
BEDFORD AVE.
KINGS HIGHWAY
FLATLANDS AVE.
SEAVIEW
BELT PKWY
R.R.
171
65
108
76
345
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214
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272
119
240
193
203
78
312
199
197
222
207
236
278
LEGEND
○ Elementary School
◐ Elementary School Under Construction
◍ Elementary School to be Constructed
⬡ Junior High School
◐ Junior High School Under Construction
◍ Junior High School to be Constructed
□ Academic High School
◫ Academic High School Under Construction
▥ Academic High School to be Constructed
◇ Vocational High School

Present and Proposed Scattered-Site Schools in East Central Brooklyn

PUBLIC JUNIOR HIGH SCHOOL POPULATION:
EAST NEW YORK

GRADES		6-8	7-9
NUMBER OF SCHOOLS		2	3
YEAR	POPULATION	% WHITE	% NEGRO OR PUERTO RICAN
1961	6,109	60.1	39.9
1963	6,499	46.9	53.1
1965	7,324	36.2	63.8

The five communities, as already suggested, present considerable diversity in physical characteristics as well as in population composition. Their housing ranges from the tightly knit, increasingly substandard row houses of Brownsville to the large single-family houses of Midwood and Flatbush. The area includes wood-frame two-family homes in Canarsie and parts of East New York, and high-rise middle-income housing already constructed or underway in the southern sectors. Running along much of the railroad spin which traverses the center of the area are mixed light industrial and wholesale areas, some of them strong, others in a state of decline and a blight to adjacent areas. But there are also some sound residential areas adjacent to the line. Brooklyn College is one of the institutions that borders it. There is high-density land use along such major arterials as Flatbush Avenue, as well as open space, particularly along the southern marshes which border Jamaica Bay.

A walk through the area gives a much stronger impression of the changes which are taking place than do statistics. In the highly developed northern section of the area, one sees evidence that physical blight, already pervasive in Brownsville, is beginning to spread. To the south, the new construction represents another chapter in New York's frantic effort to augment its supply of standard housing.

But neither the data nor first-hand observation show that the future is set for East Central Brooklyn. The shape of the future can still be determined by public policy decisions.

The Original Proposals

Conflict arose in East Central Brooklyn when the Board of Education proposed to construct seven schools on scattered sites to alleviate severe overcrowding. The seven schools included four elementary schools for Brownsville, and three intermediate schools – one each in Canarsie, Midwood Flatlands, and East New York. Parents in Brownsville felt the six schools would do nothing to alleviate the de-facto segregation in Brownsville schools and, in fact, would result in further school segregation; the new schools could be characterized as neighborhood schools drawing mainly from immediately adjacent areas.

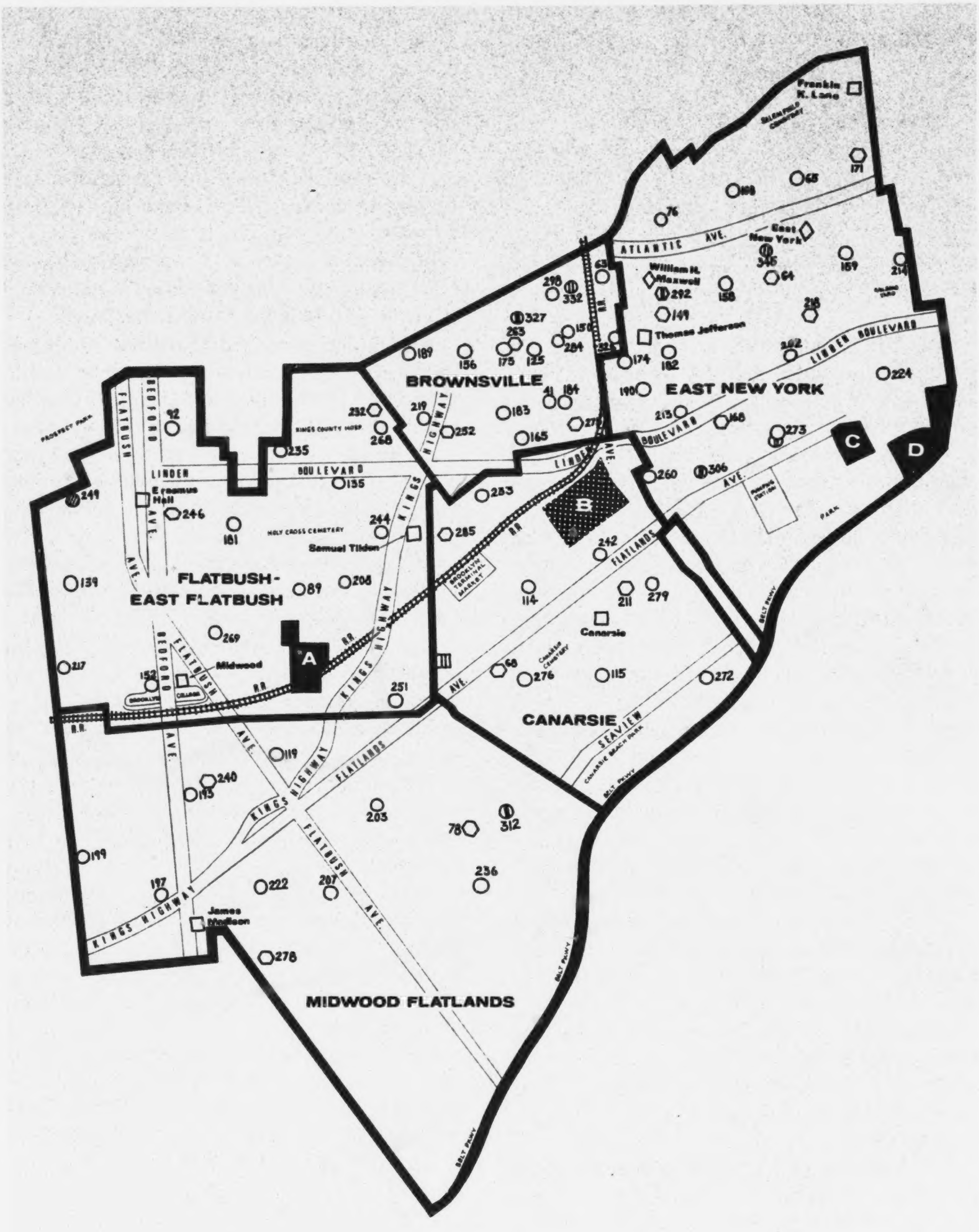
The parents developed a proposal for the construction of an education park to house a minimum of 15,000 children and serve all East Central Brooklyn. The site, called the Flatlands, was a large undeveloped tract roughly in the center of East Central Brooklyn, just south of Brownsville. The park was to be solely for intermediate grades. Among those children attending such a park would be students from six existing intermediate schools which were already either predominantly Negro or white.

Under the terms of the parents' proposal, five of the intermediate schools replaced by the park would be transformed into elementary schools to alleviate overcrowding. The sixth would be turned into a high school annex.

The parents sought and obtained an injunction from the New York State Commissioner of Education to prevent the Board of Education from proceeding with the construction of the seven scattered-site schools until the feasibility of their plan was studied. The injunction was granted on the basis that, if the Board proceeded with the seven schools, the park proposal could never be implemented. The injunction was granted in the spring of 1966.

During the summer of 1966, the School Planning and Research Division of the New York City Schools developed an alternative school construction proposal for East Central Brooklyn. It was considerably broader than the first plan. The Division called for the construction of two education parks: one to serve Canarsie, Brownsville, Flatbush-East Flatbush, and Midwood Flatlands; the second to serve East New York and parts of the neighboring borough, Queens.

The first park was to be located in Flatbush-East Flatbush and comprised one senior high and


BROWNSVILLE
EAST NEW YORK
FLATBUSH-
EAST FLATBUSH
CANARSIE
MIDWOOD FLATLANDS
A
B
C
D
Franklin K. Lane
East New York
William H. Maxwell
Thomas Jefferson
Erasmus Hall
Samuel Tilden
Midwood
Canarsie
James Madison
ATLANTIC AVE.
LINDEN BOULEVARD
FLATBUSH AVE.
BEDFORD AVE.
KINGS HIGHWAY
FLATLANDS AVE.
SEAVIEW
BELT PKWY
HOLY CROSS CEMETERY
KINGS COUNTY HOSP.
BROOKLYN TERMINAL MARKET
BROOKLYN COLLEGE
PROSPECT PARK
R.R.

Education Park Proposals in East Central Brooklyn

The Flatlands site proposed by the parents is identified as site B. The alternative park sites proposed by the staff of the Board of Education are shown as sites A and C-D.

three intermediate schools, with a total capacity of 10,000 students. In addition to the park, the Division proposed three scattered-site intermediate schools – one in Brownsville, the other two in predominantly white neighborhoods with no site specified.

The second park, to be located in East New York, included a high school and three intermediate schools with a total capacity of 9,400 students. Our assignment was to study the two proposals, determine their merits, and recommend one. It proved to be a difficult task for more than the obvious reasons. One of the big points of contention between the parents and the Board of Education staff, as stated in the public record, was the question of what was happening to the racial composition of East Central Brooklyn. The only way to determine who was right was to develop a comprehensive demographic analysis. None existed.

The administrative staff responded unfavorably to the parents' proposal because the administrators felt the racial composition of areas to be served by the park was unstable, and that the park would lead to de-facto school segregation. The statistical basis for the staff assertion was the change in school composition in areas adjacent to the site chosen by the parents for their park proposal. Within one-and-one half miles of this site, called the Flatlands, the staff identified 23 of 24 schools which lost white students between 1958 and 1965. The staff also pointed to a loss of white students throughout East Central Brooklyn significantly greater than the overall city-wide trend.

Using the same data as the administrative staff, the parents, with the outside help of a statistician, arrived at substantially different conclusions. While conceding that elementary schools adjacent to the Flatlands site had lost white students, they claimed that no long-range projections could be derived from these losses because there were few, if any, white students left to lose. They also cited the population stability in such areas of Canarsie and Midwood-Flatlands, as well as the high levels of new middle-income housing construction, as offsetting non-white increases in other areas.

As for the rate of white student losses, the parents questioned the validity of comparing one section of Brooklyn against city-wide totals because the latter contained such predominantly white bastions as Staten Island and Queens. They felt a more realistic comparison would be between East Central Brooklyn and the remainder of Brooklyn. This comparison showed a relatively stable racial composition for the areas to be served by their park proposal.

The difference, therefore, between the staff and the parents was substantially this: The parents saw increasing stability for the five communities which could be assured by the construction of an education park serving all intermediate school children and offering quality education as a positive attraction to white students. The staff took a pessimistic view. It felt that the parents' proposal, because of racial change in the population, would ultimately result in a segregated park. As an alternative, the staff offered two parks, both located in predominantly white neighborhoods, with one drawing from Queens for many of its white students. In addition, it proposed the construction of three neighborhood intermediate schools, at least one of which would have been clearly segregated.

An Evaluation

We were unable to break the statistical deadlock between the parents and the staff. We did, of course, make the obvious recommendation that if the Board of Education is to make responsible decisions concerning school integration, it must have more comprehensive demographic data. Such statistics might be best obtained through a city-wide effort of computerized demographic analysis which would be made available to all agencies.

Neither the time nor resources were provided to us to engage in such analysis, but what demographic analysis we were able to perform showed that both the parents and the staff had underestimated the probable student enrollments for East Central Brooklyn. Using the percentage-survival method of enrollment projection, we found that, by 1972, the Canarsie and Flatbush-East Flatbush areas, respectively, would have a total of 1,681 and 977 intermediate school pupils more than the staff's projections for these areas. Of this total of 2,658 children, approximately

2,032 would be white and 626 would be Negro and Puerto Rican. How many of these children would attend public schools would depend largely, of course, on private and parochial school policies in the years ahead. In other words, our brief studies tended to support the integration potential underscored by the parents, although our total enrollment projection was larger than that envisioned in their park proposal.

There are some advantages but many shortcomings in the proposals of both the parents and the administrative staff. The clear benefit of the parents' park idea is its simplicity – all school construction to be centered on an education park serving the entire area. Further, this proposal would preclude the construction of any new school space which would clearly be segregated. It is this latter advantage that shows the essential weakness of the staff plan – both the original idea of seven scattered-site schools and the later proposal for two education parks and three scattered-site intermediate schools. One of those schools – that slated for Brownsville – would clearly be a segregated school; there are also serious questions about the potential racial balance of the other two, which would be located in predominantly white neighborhoods.

An essential weakness of the parents' proposal was its underestimation of the total school population. Although their proposal called for a park of approximately 15,000 pupils, our analysis showed that the park might have to serve at least 19,000. Not only did this proposal underestimate, in our judgment, the growth in school population; it did not take into account where that extra growth was most likely to occur, namely in the southern portions of East Central Brooklyn, where new housing is under construction. This is an area quite distant from the proposed Flatlands site. Another question was thus raised. Should there not be greater flexibility in a park proposal? Why not more than one park site?

Flexibility is the greatest advantage of the staff proposal. The two locations selected for parks are more centrally located between already developed areas and those scheduled for new construction. The weakness of the staff proposal, as already noted, is that the accompanying construction of three intermediate schools would put the Board of Education in the position of constructing at least one new de-facto segregated school. Moreover, the staff proposal does relatively little to desegregate existing schools.

There are even broader problems with both proposals. Neither is related to the overall physical needs of East Central Brooklyn, and neither is in a firm position to influence change in the area. Both seemed to have been developed in a planning vacuum.

Nothing better illustrated this than the fact that neither of the proposals took into consideration the Cross-Brooklyn Expressway which, as then planned, would traverse the entire area along the alignment of the railroad cut. The highway would therefore cut through part of one of the park sites proposed by the school staff, and partially isolate the Flatlands site proposed by the parents.

But the highway did more than cut through two of the sites under consideration. It promised to create a physical barrier between the north and south portions of East Central Brooklyn. In other words, the huge public investments represented by the expressway and the schools were in direct conflict with each other.

This conflict between public agencies is not unusual in New York – nor, for that matter, in many other American cities. Because of New York's size, however, its conflicts are greater and more difficult to overcome. The schools in New York seem forever groping with the effects of policies instituted by other agencies, particularly those concerned with housing. East Central Brooklyn has its examples of this, the biggest one being the construction of thousands of units of predominantly white middle-income housing in the southern sectors of the area while the school staff grapples with the problem of white student losses in the northern end.

Normal school planning is frustrating and often ineffective when there is no unity of purpose among public agencies. Park planning can be disastrous under such conditions, as underlined throughout this report. Yet East Central Brooklyn had all the conditions for disaster – a lack of precise demographic data, massive housing construction unrelated to total community planning, unchecked blight and deteriorating housing, and the clash of a highway alignment with school sites.

A Planning Proposal

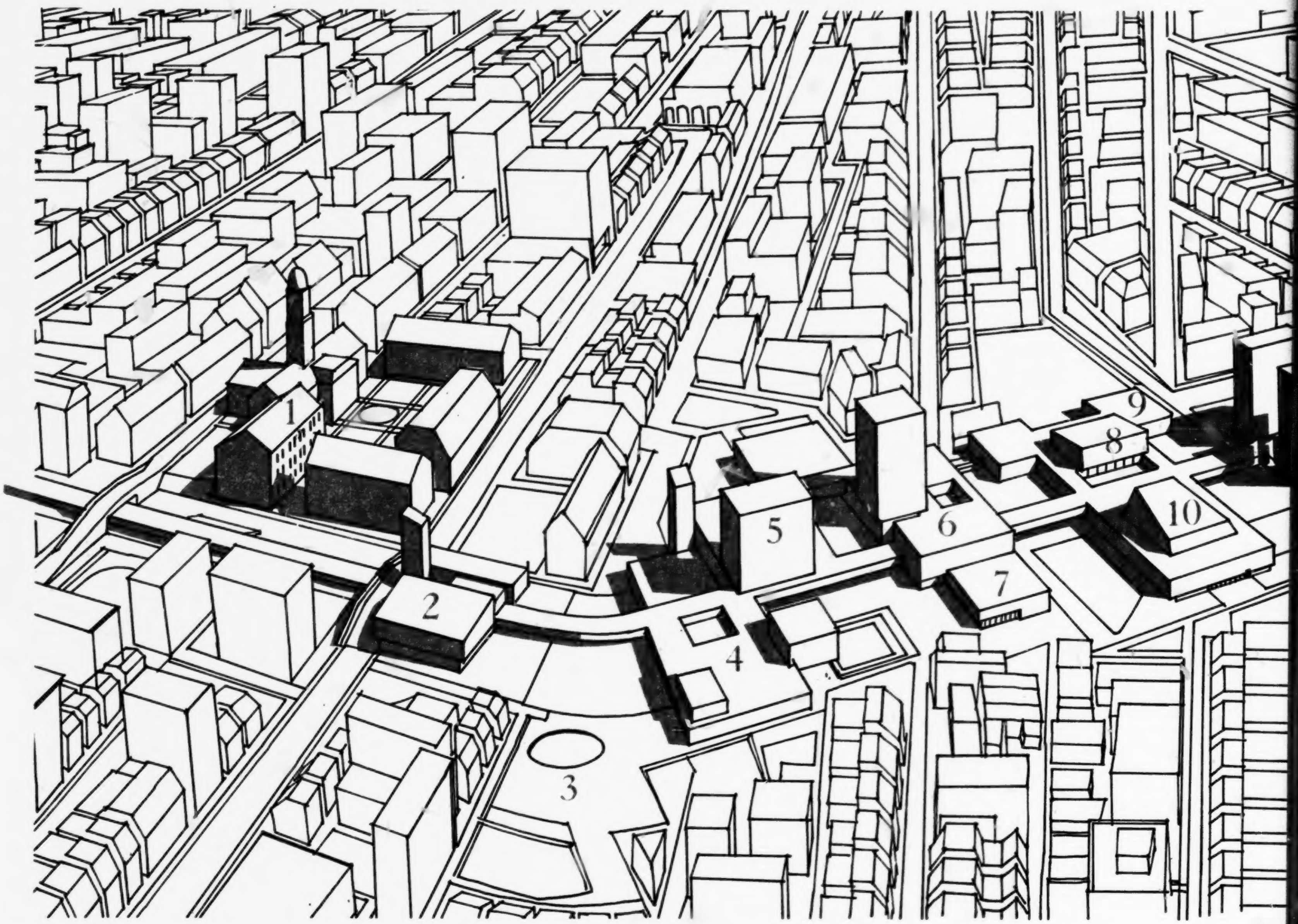
Under the prevailing conditions in East Central Brooklyn, it is impossible to express enthusiasm for either existing park proposal. Both seem inadequate. What is needed is a way in which school planning can be related to the existing strengths and planning opportunities. High among these is widespread community concern, as typified by the efforts of the Brownsville parents. Another is that, while East Central Brooklyn has its problems, it has much in the way of community strength in terms of buildings as well as institutions. The third is the highway – the fact that the area was slated for huge public investment in a major facility which, if properly planned, could help rather than hurt. Indeed, as we studied it, the highway represented a key to the revitalization of East Central Brooklyn.

The preferred alignment for the highway is the existing railroad line. Through the use of air rights, highway construction over the line could minimize business and family displacement. The line is a landmark in the area. It represents a strong physical symbol shared by each of the five communities. While each community presents widely divergent characteristics, the railroad presents a common theme among them as it burrows past Brooklyn College and the tree-lined residential streets of Midwood, continues along the sites of relatively new apartment houses in Flatbush, and then surfaces in the light industrial areas of Canarsie and moves northward through Brownsville and East New York. Although it was never designed to fulfill such a role, the line unites the entire area.

Much of the land along the line, including the two sites under consideration for education parks, has enormous development potential. Other sites and land uses close to the line represent a distinct threat to the area. They include marginal light industry, junk yards, and obsolete plants and inefficient storage facilities. And now there is what many residents regard as the specter of disruptive highway construction planned above the line.

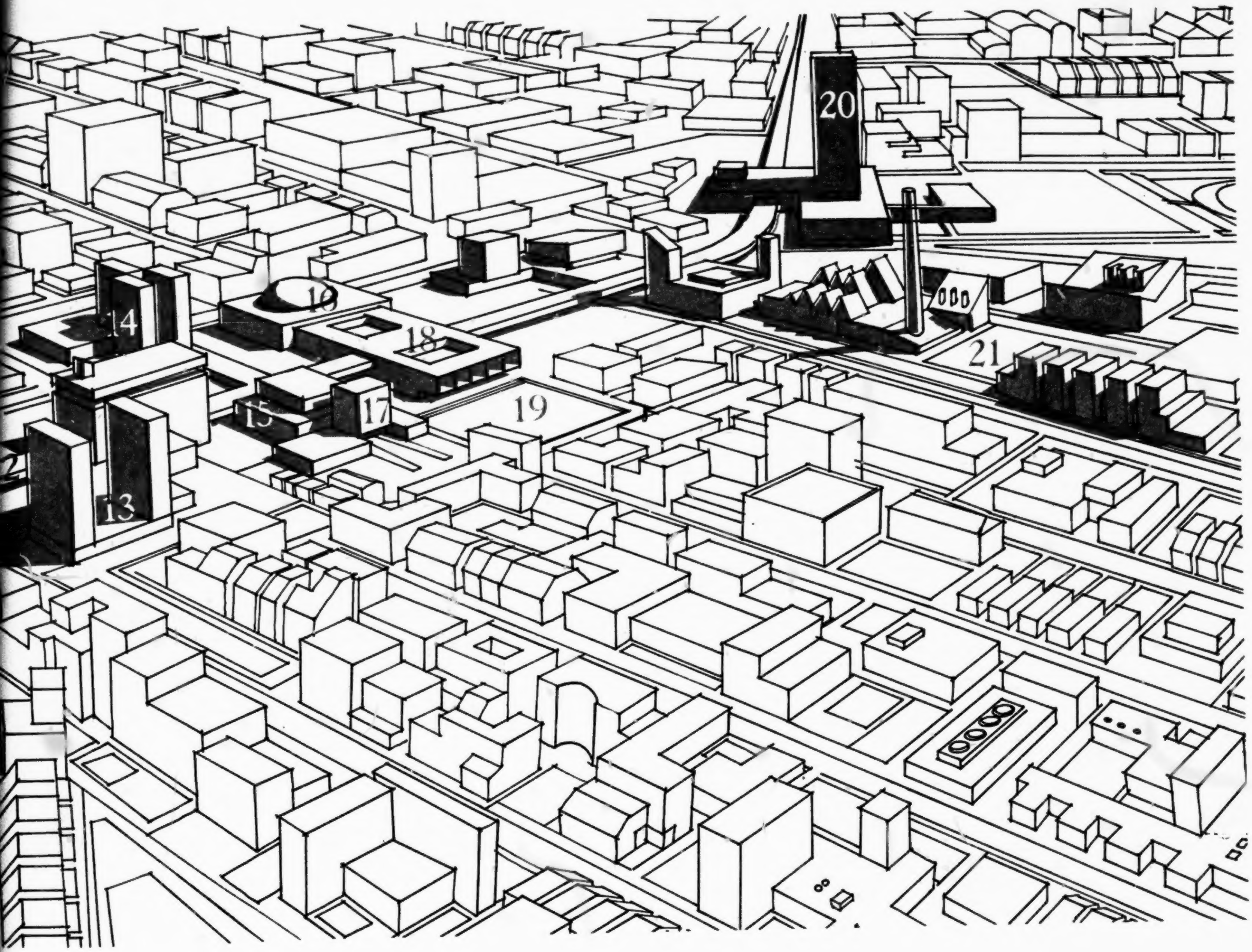
The combination of the already incompatible land uses along much of the railroad and the new highway could be a severe blow to the health and vitality of East Central Brooklyn, seriously hampering efforts to achieve residential stability. If the highway is meshed with sensitive community planning, however, it could lead to a total linear development of a new community center which would include housing, commercial facilities, recreation, and schools connecting the entire East Central Brooklyn area.

(over) The linear city atop a rail line and highway traversing 5½ miles in East Central Brooklyn. Linear development, incorporating air rights, begins at Brooklyn College and stretches to a new community college in Brownsville.

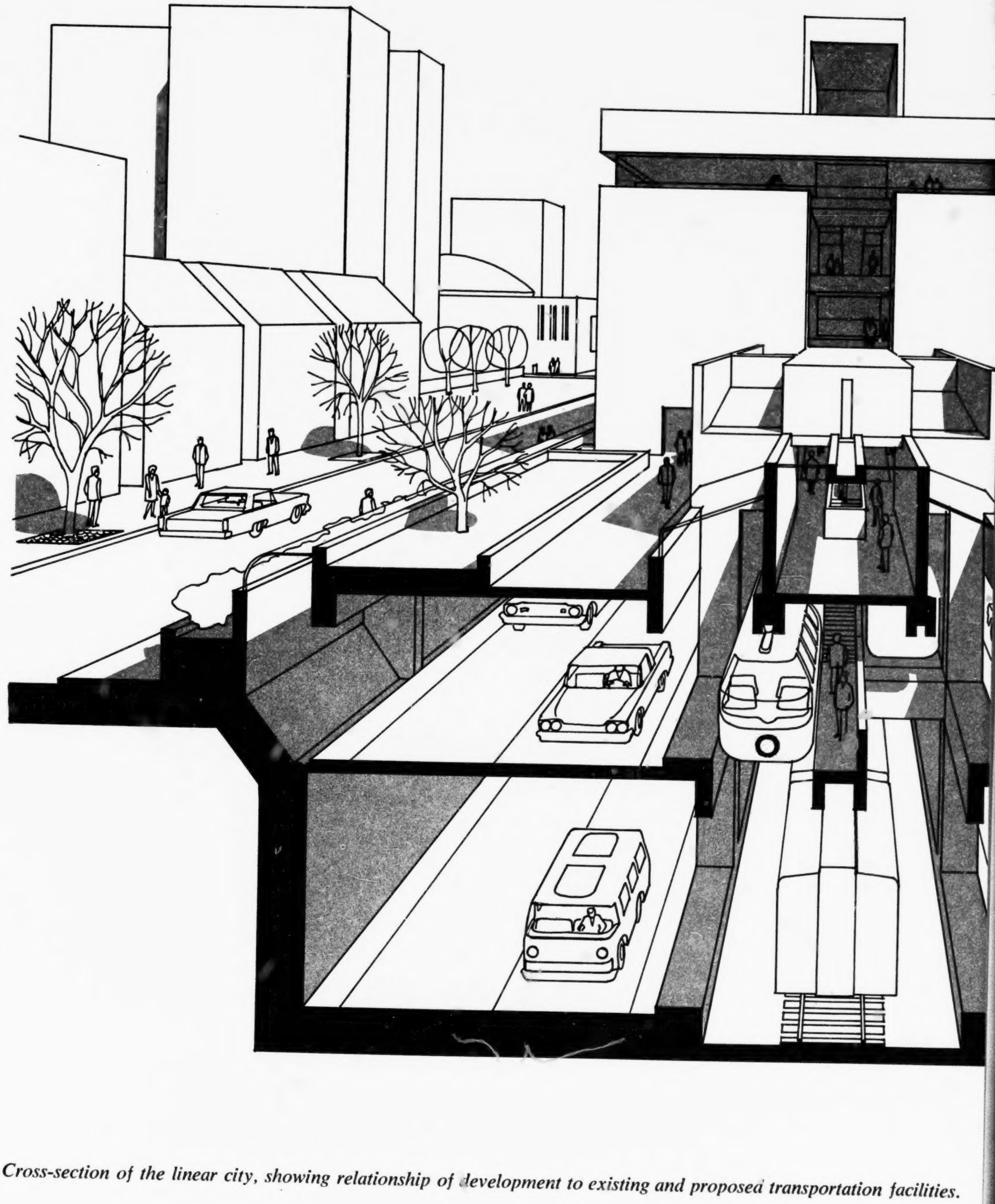


Area Studied in the Development of the Linear City Plan

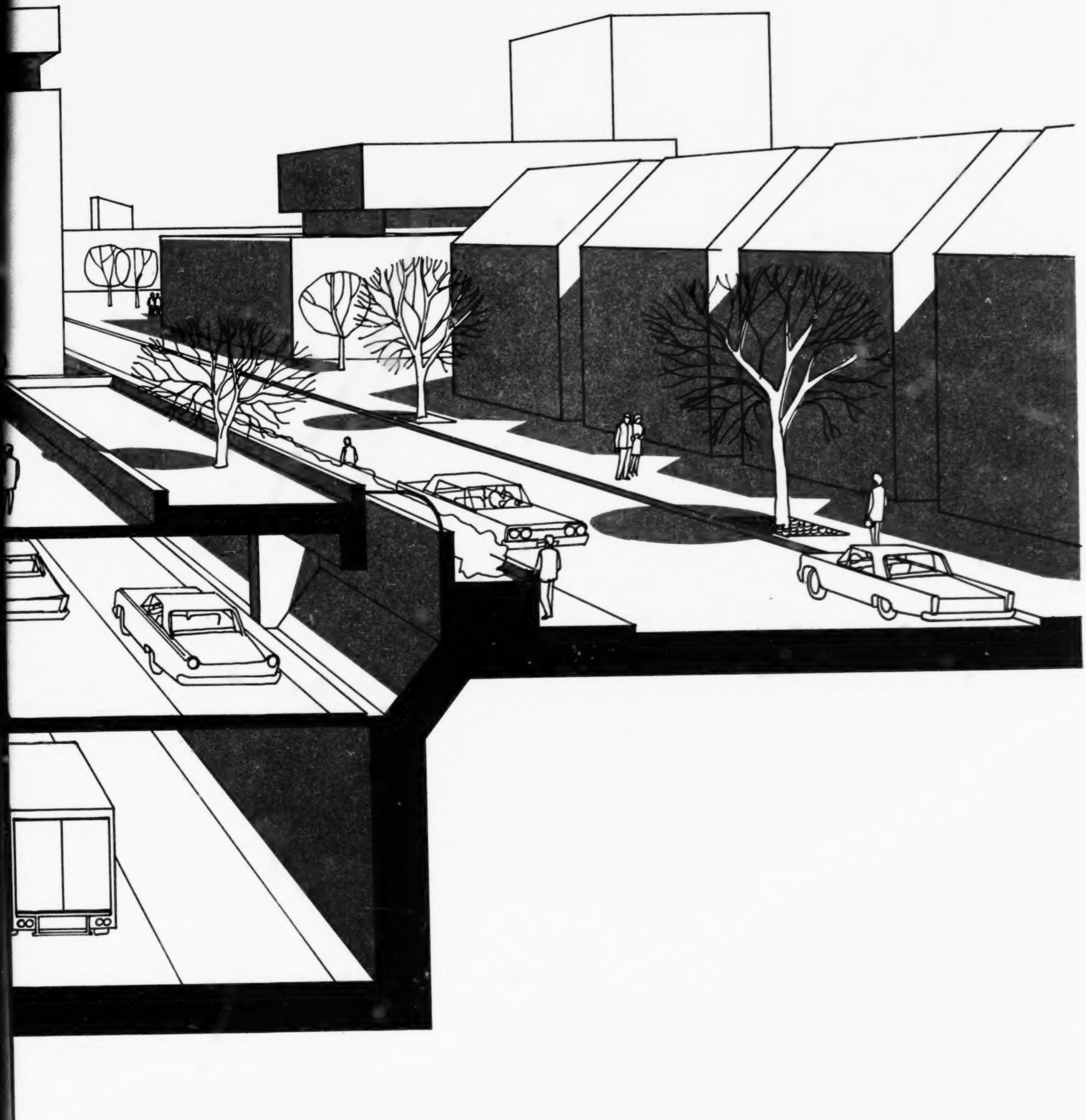
1 Brooklyn College
2 Home-School Center
3 Recreational Green
4 Technical-Vocational Center
5 Housing
6 Shopping
7 Pre-School Center
8 Cultural Center
9 Pre-School Center
10 Social Science Center
11 Fine Arts Center
12 Shopping

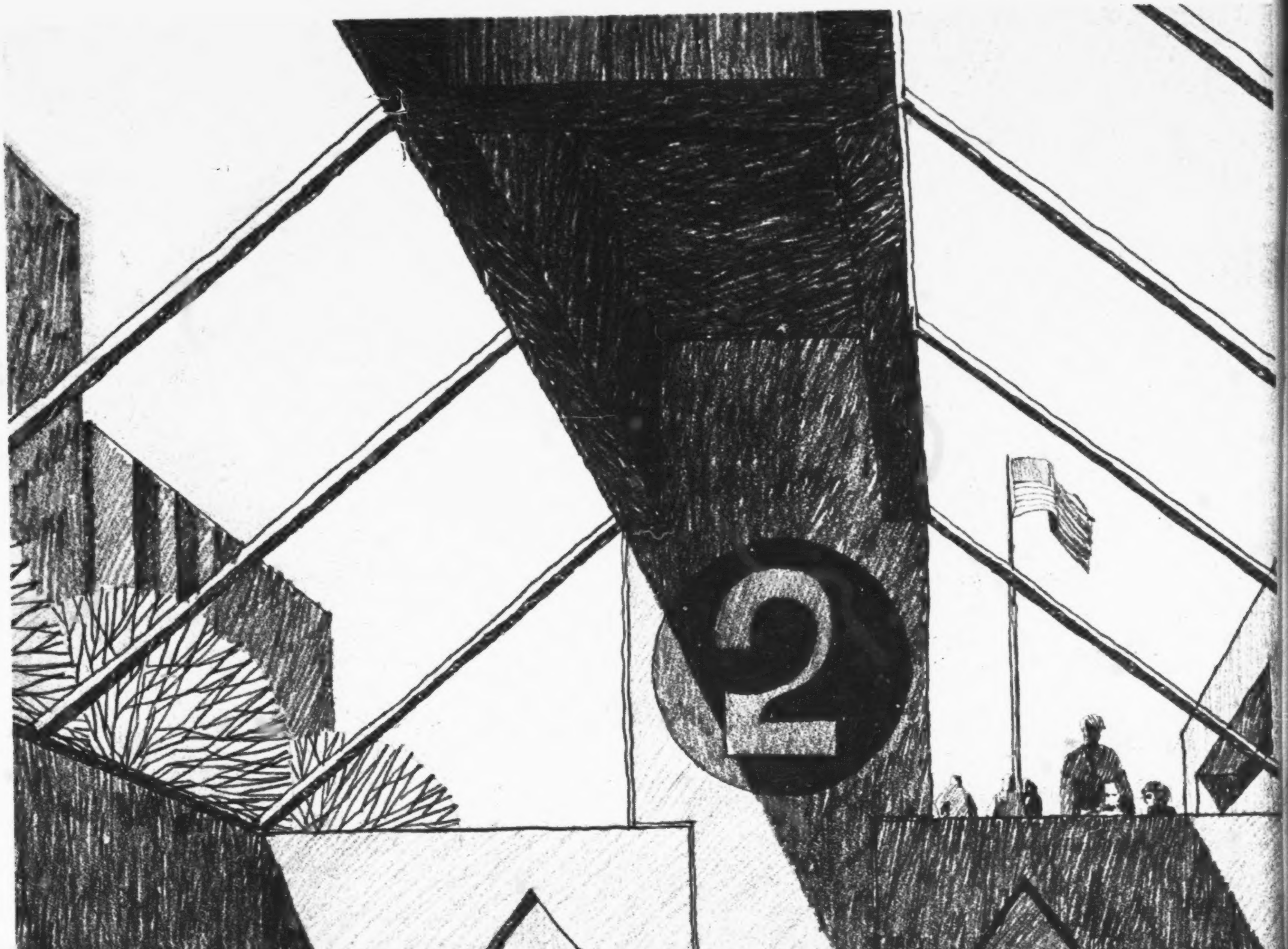


13 Housing
14 Residential School Center
15 Housing
16 Physical Science Center
17 Home-School Center
18 Community Service Center
19 Recreational Green
20 New Community College
21 Industrial Park

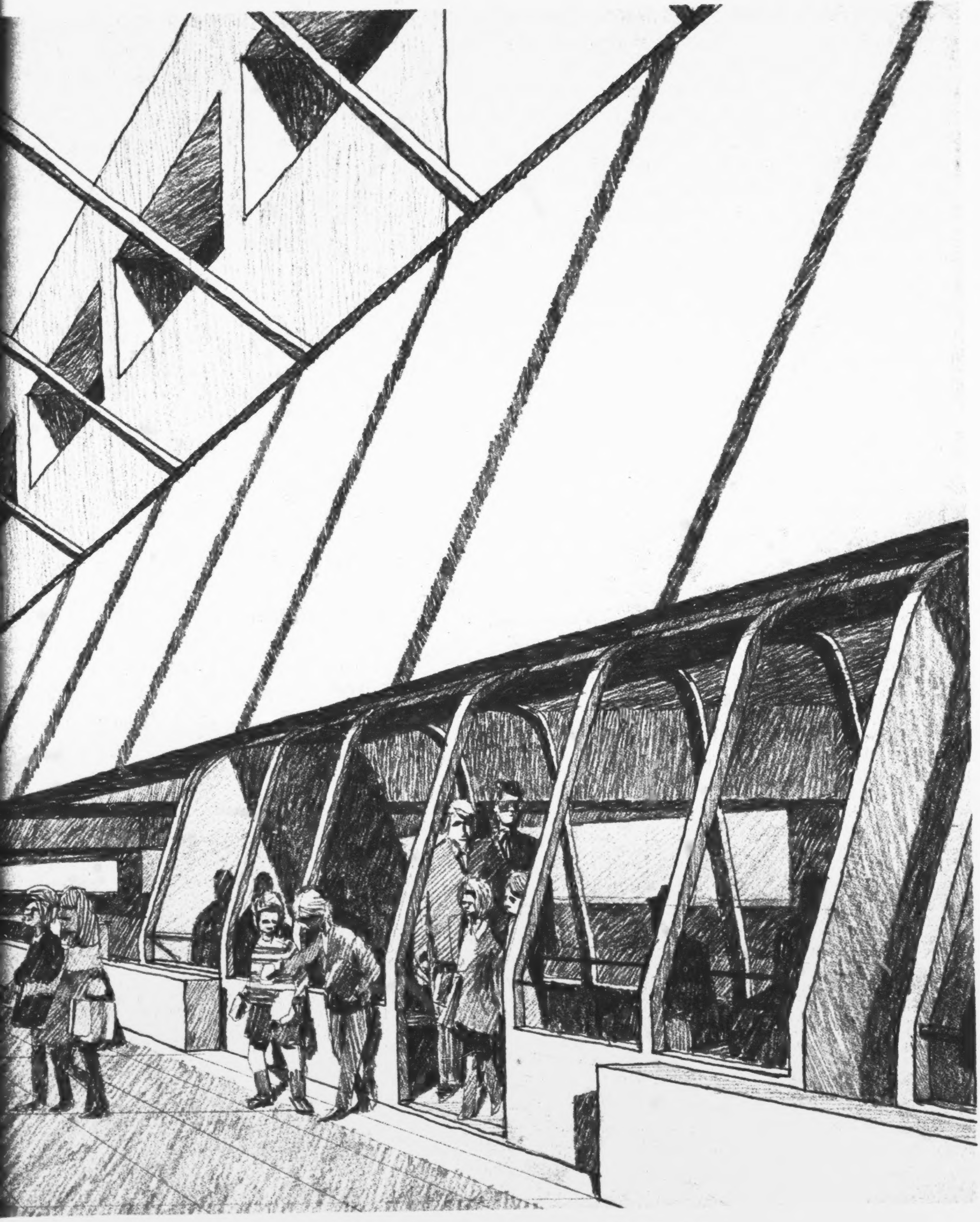


Cross-section of the linear city, showing relationship of development to existing and proposed transportation facilities.





Children arrive at school as soon as they reach the stop closest to their home. Special community transit



facilities take them to various centers offering individualized programs of instruction.

The first step toward this needed total development, as we see it, would be a recognition by the city that in planning a highway above the railroad line, it is *not* faced with a problem of how to fit together two forms of transportation; it is, rather, dealing with an opportunity to create a major transportation spine which would not only cross the area, but could serve it as well.

The rail line is preferred as the alignment for the highway, partly to cut down come of the disruption and displacement that large-scale road building usually incurs. But the alignment also presents some unusual challenges. One is to find a way to use the line without disrupting service. Another is to screen the expressway wherever possible from adjacent residential areas.

Serious consideration is being given to deepening the cut, placing the line on a lower level, and decking the expressway above. We propose that the further depression of the rail line and the decking of the highway be accompanied by the provision of additional lanes or tracks for a local transit service for at least the five communities. Thus, the means for total linear development would be established.

Through the use of air rights, adjacent sites, and spot clearance, we envision the construction of this transportation spine being accompanied by large-scale residential, commercial, and public development in which the schools would play a major role. School space could be constructed along the spine. Specialized facilities could be provided as part of an overall linear school where it would be possible to provide outstanding centers for such fields as science, the arts, and technology. This system of schools could be anchored at one end by Brooklyn College, at the other by a new community college and technical institute. Some high school students could spend part of their school day in advanced work at either college.

In effect, children would be in school once they arrived at stops along the transportation line closest to their homes. The local transit service would take them to the facility, where they would receive instruction. Each special facility along the line would permit a student to spend part of or a full day – or perhaps a month – at a humanities, science, or social sciences center. He could utilize whatever facility for whatever length of time would be required by his individual needs.

The means of conveying the pupils along the school could be a series of special rail cars or one of a number of new vehicles being developed, such as a rail bus capable of running along tracks as well as on regular street pavement. At night, the school centers would be available for adults.

We feel that this proposed development would meet not only the stated objectives of the original park proposals, but would achieve the equally crucial objective of combining school programs with total community development. This proposal would not present a significant delay in school construction. Rather, it would assure a more vital role for the schools in a broad development effort.

In concert with other public agencies, and with community involvement in the planning, this comprehensive effort to provide housing, community service centers, employment opportunities, shopping clusters, and school and cultural centers could result in a revitalized city within a city. This linear city would be stable, environmentally pleasing, and capable of offering the urban dweller conditions for the attainment of his personal aspirations. We know of no other way to deal with the total needs of East Central Brooklyn. The large-scale effort implied in this planning proposal is essential. In other words, the Brooklyn case study showed most vividly why the schools cannot "go it alone."

6

the park in baltimore:

Children's City

In Baltimore, we had the opportunity to study the educational implications of the park more intensively. We had identified the major issues in previous studies in New York and Philadelphia, and were in a better position to investigate some of the advantages of the park in specific terms. Moreover, the school system had taken the initiative in exploring the idea with no perceptible community pressure concerning the park, pro or con.

Dr. Laurence Paquin and his staff wanted us to direct our study toward the elementary and junior high school grades, where Baltimore has its greatest space and program needs. They wanted to know what educational programs and specialized instruction at grade levels pre-K–9 a park of approximately 6,000 students could offer beyond those planned in their smaller scattered-site schools. The control group, for purposes of comparison, included a recently constructed elementary school and a junior high school.

The Baltimore superintendent and his staff were also interested in the feasibility of locating a park in the downtown area, closely allied in terms of planning with urban renewal activity projected for the vicinity of the Inner Harbor. They had two reasons: first, the need for new schools in and around downtown Baltimore; second, their desire for a strong physical and visually prominent role for the schools in the proposed revitalization of the downtown area. They felt also that new housing for mixed-income levels might have the potential to attract more middle-class families to the city and the public schools.

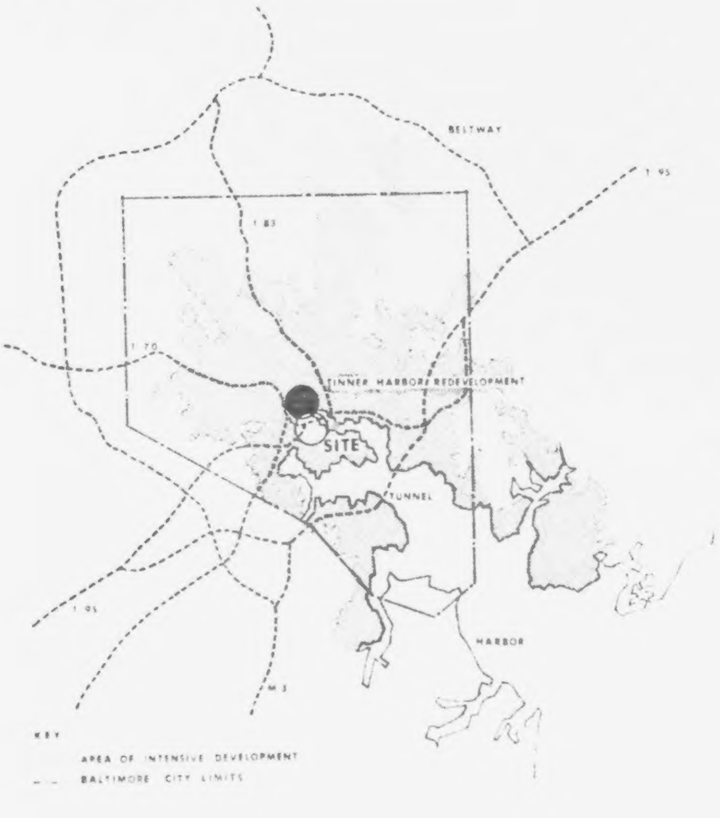
It was then agreed that the best way to test the education park concept in light of these goals was to plan an actual park. This meant finding a satisfactory site, developing a park model, presenting ideas on the kind of space allocations and programs it could provide, and then comparing the resulting plan, including its economic dimensions, to the control group.

Site Selection

Meetings with the school staff produced a list of six requirements to be met in the site-selection process. One was that the proposed park site had to be close to neighborhoods requiring elementary and junior high school space. Related to this objective was site accessibility – the location would have to be one to which a substantial number of children could walk, but adjacent to major street arterials for those who would need transportation. The third requirement was that the site had to be related to the Inner Harbor Project, a major urban renewal plan featuring new housing for mixed income groups. The fourth was that the site had to be large enough to accommodate 6,000 students. Normally, this meant about 25 acres.* (A smaller site would do, assuming that we might create additional acreage through "made" land such as structured parking, roof terraces, and covered play areas.) A fifth was that the location had to encourage school integration. The final requirement, which was really more of a hope, was that the site be highly visible so that, in combination with the park design, it could symbolize the importance of children and their education to the life of the city.

Requirements of this kind present obvious challenges, especially to those familiar with inner-city and downtown real estate. Such sites are difficult to find. They are usually expensive.

Project Location in Baltimore



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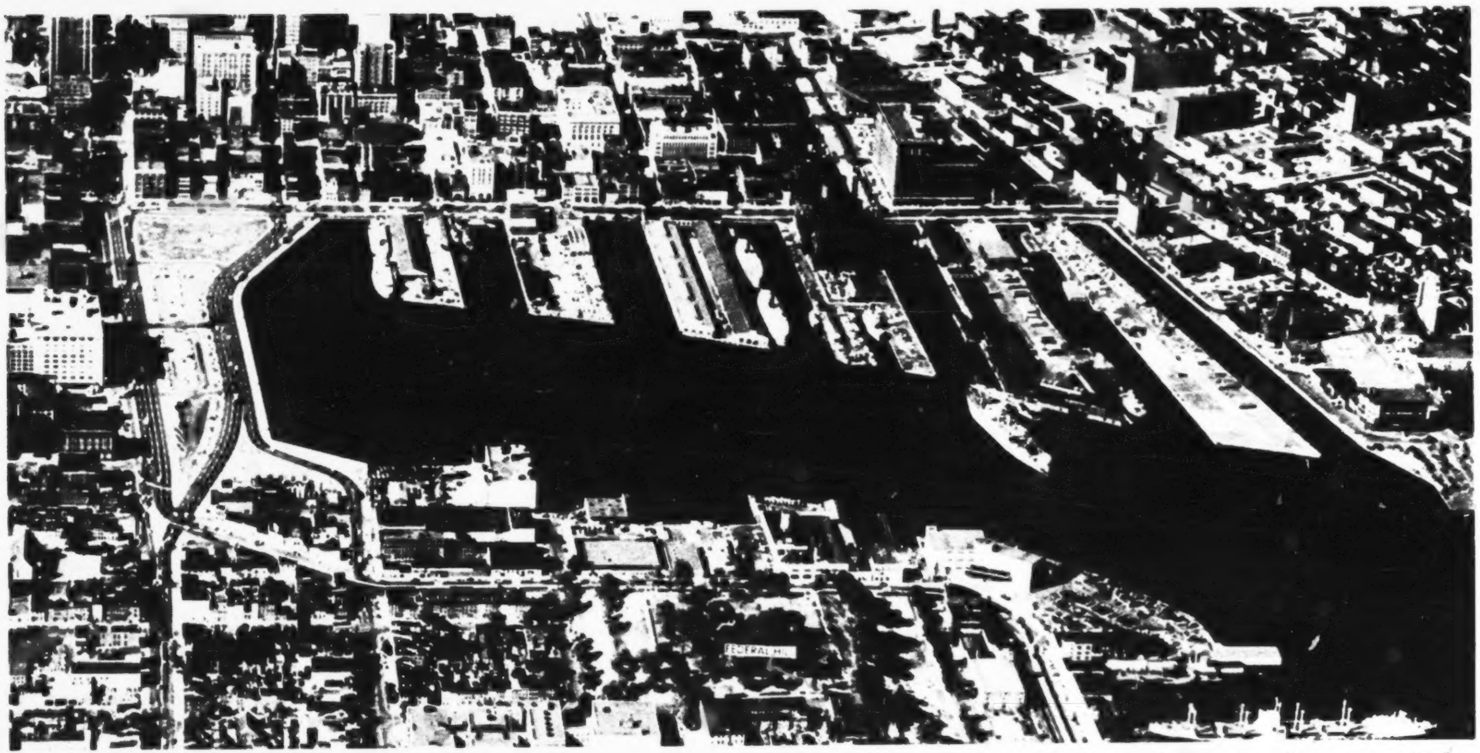
*Generally, Baltimore site standards provide for three acres for an elementary school and 10 acres for a junior high school.



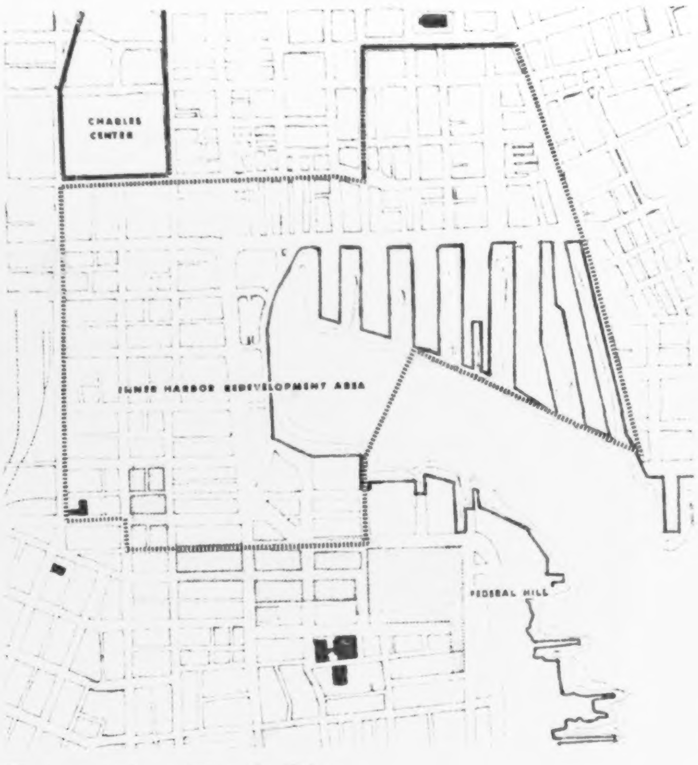
Baltimore's Inner Harbor. The site under consideration for an education park is along the bottom of the photograph, overlooking the harbor and downtown areas.

They inevitably require substantial relocation of families, businesses, or both.

School sites appear to be premium-priced in Baltimore, regardless of location, and even with urban renewal write-downs. A 1965 school required an outlay of $4.00 a square foot. It was located in an urban renewal project. City officials claim that the renewal write-down for school space in Baltimore is generally one-half the fair market value.

In the area under consideration, land costs were estimated at $8.00 a square foot, or roughly $360,000 per acre. This figure is based on one of the control-situation schools in a comparable location, for which land cost projected to 1968 was estimated at $8.00 a square foot. It was checked by estimating the density in the vicinity at 40-to-50 dwelling units per acre, with average cost of acquiring and clearing at $7-9,000 per dwelling unit.

The location of the park in the urban renewal project could reduce the cost to $180,000 per acre, according to the current rule of thumb, but it was soon pointed out that local officials could provide no more than seven acres for a school in the project. At the outset, a significant economic hurdle stood in the way of an education park in central Baltimore.



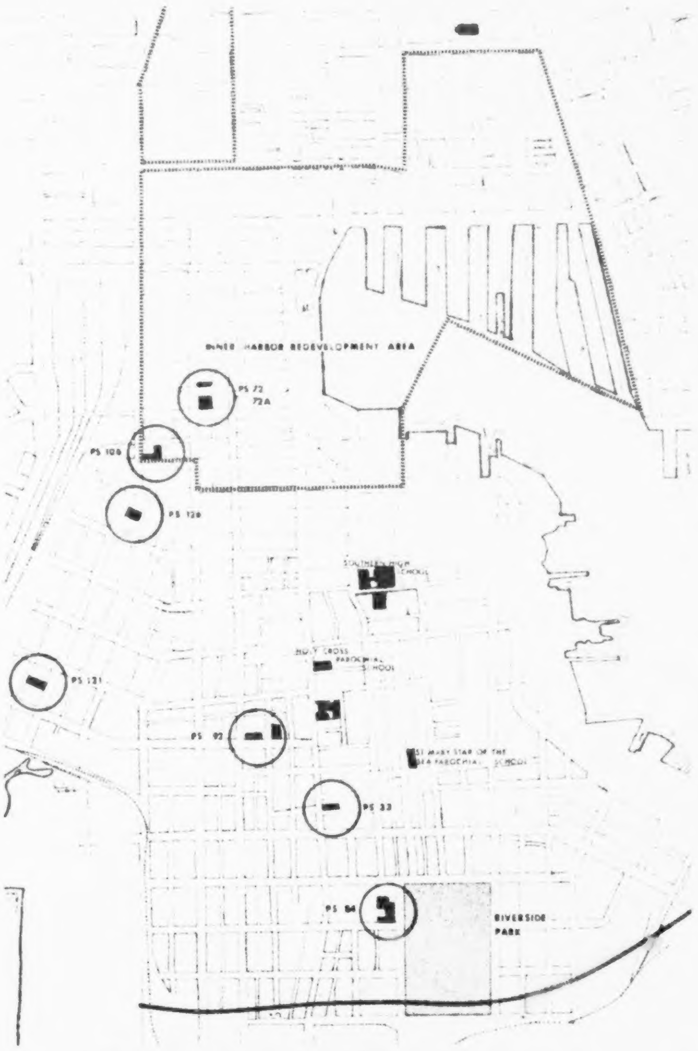
Education Park Site

The other site requirements led to a close examination of an area adjacent to Federal Hill, which overlooks the Inner Harbor from the south. This area was one of four possible downtown locations nominated by the City Planning Commission. Our studies showed that it met the basic social and educational requirements. It was adjacent to the Inner Harbor Project. Indeed, it joined the project area to the South Baltimore neighborhood, characterized by obsolete and overcrowded elementary and junior high schools, eight of which had been recommended for replacement in a school-facilities survey.

ELEMENTARY SCHOOL ENROLLMENT	PS 84	1,100
	PS 33	300
	PS 92	600
	PS 121	300
	PS 126	400
JUNIOR HIGH SCHOOL ENROLLMENT	PS 72, 72A	900
	PS 106	300
		3,900 STUDENTS

The 1980 population projection and school-facilities survey for the area showed that the existing sound schools in South Baltimore and adjacent areas had a capacity of 800 students. An estimated total of 4,600 children would be enrolled in the elementary and junior high schools, resulting in a shortage of 3,800 spaces. Of the 3,800 students for whom new school space had to be provided, it was estimated that 3,200 would be white and 600 non-white. This projection was for South Baltimore and immediately adjacent neighborhoods. It took into account the net impact on the population of planned public improvements in the area, including highway construction and new moderate-and-upper-middle-income housing in the Inner Harbor Project. The students would be within ¾ of a mile of the site under consideration. Therefore, most of them would be within walking distance.

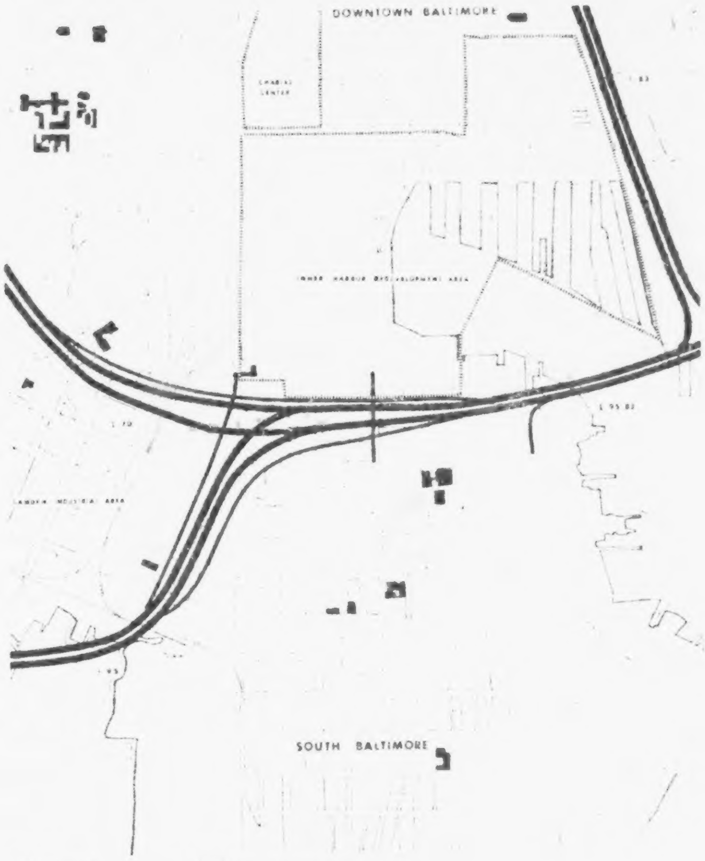
Despite the deteriorated conditions of its school plant, much of the housing in South Baltimore is sound. Much of its population is stable, and many of its families are white and have lived there for generations. It has a high percentage of blue-collar workers and a great deal of manufacturing employment in nearby plants.


INNER HARBOR REDEVELOPMENT AREA
PS 72
72A
PS 106
PS 126
SOUTHERN HIGH SCHOOL
HOLY CROSS PAROCHIAL SCHOOL
PS 121
PS 92
ST MARY STAR OF THE SEA PAROCHIAL SCHOOL
PS 33
PS 84
RIVERSIDE PARK

Area Schools to Be Replaced

While the park site could handle the school needs of South Baltimore, it would by no means serve only that area. Its development into a park with a capacity of 6,000 students, its relationship to the Inner Harbor and the downtown area, makes it a neutral site related more to downtown as a whole than to any adjacent neighborhood. In other words, a park in this location could draw on the substantial white population of neighboring areas as a firm basis for school integration, but it would still have the capacity for an additional 2,200 students, giving it a city-wide role. School administrators could draw students from other areas where existing elementary and junior high schools are overcrowded or segregated.

The site is also highly visible and accessible. It has a commanding view of downtown Baltimore and the harbor. It is served by major arterials. Its accessibility is further enhanced, although its development potential is complicated, by the fact that three interstate routes – 195, 170, and 183 – converge along the border line between the site and the Inner Harbor Project. Indeed, part of the site was included in the proposed land-acquisition for the highways, presenting obvious complications. But it also


DOWNTOWN BALTIMORE
CHARLES CENTER
I 83
INNER HARBOR REDEVELOPMENT AREA
I 95 83
I 70
CAMDEN INDUSTRIAL AREA
SOUTH BALTIMORE

Highway Alignment

offers some interesting planning opportunities.

The first of these stems from a growing concern in Baltimore about the impact of the interstate system on the city's landscape. As much as any other city in America, Baltimore has shown increasing sensitivity over the problems which can be caused by highway construction. This applies not only to displacement of families or businesses, disruption of local traffic patterns, and removal of valuable real estate from the tax rolls, but also to the visual quality of the new roads, and how they relate to local planning objectives. In Baltimore, the convergence of the three interstate routes will take place at one of the most prominent points in the city. The roads will cut through the base of Federal Hill, a cherished local landmark, and then rise to bridge the harbor area.

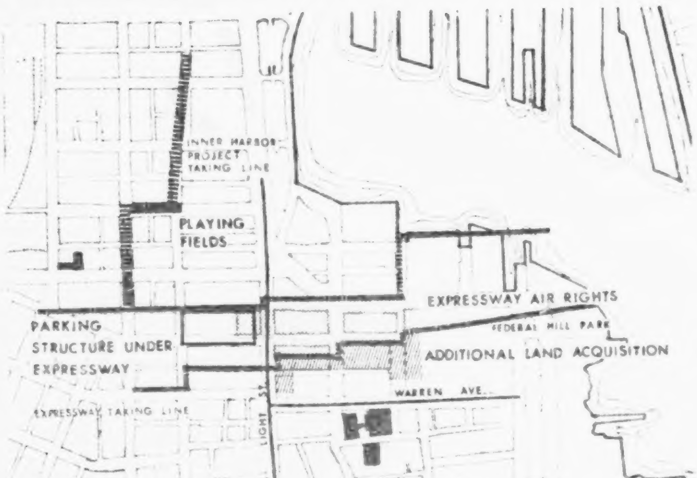
An account of the local controversy over how the bridge should be designed would by itself form a brisk chapter in any book on city planning.

The sensitivity and concern over these three routes is evidenced not only by local officials, but also by the State Roads Commission, which has engaged design consultants to advise on road planning. These consultants have been given a relatively free hand to work with such devices as air-rights development over the highway to help the Commission relate its highway construction with local planning objectives. The result of this local and state government concern is a readiness to entertain ideas on how the road construction can be combined with other development to maximize the public return on the expensive highway acquisition and alignment, and to minimize the disruptions – visual, social, and economic.

In the case of the Inner Harbor and Federal Hill area, we were encouraged to see what could be done with air-rights development to satisfy the school-site requirement set forth by the education staff, as well as to meet the physical and visual objectives of local planners. To many of the planners, this meant finding a feasible way in which the highways, as they went beneath Federal Hill, could be covered by an air-rights platform for an education park. Federal Hill is the culmination of a ridge rising 80 feet above the harbor and 50 feet above the surrounding land. Its geographical elevation affords the natural means of access to the elevated platform over the highway.

Most large American cities, including Baltimore, have examples of air-rights development. New York, the biggest city, has many. Park Avenue is one long, large air-rights development over the rail lines leading to Grand Central Station. The FDR Drive and the Brooklyn-Queens Expressway include a number of examples. In Balti-

Site Location and Acquisitions


INNER HARBOR PROJECT TAKING LINE
PLAYING FIELDS
EXPRESSWAY AIR RIGHTS
FEDERAL HILL PARK
ADDITIONAL LAND ACQUISITION
PARKING STRUCTURE UNDER EXPRESSWAY
WARREN AVE.
EXPRESSWAY TAKING LINE
LIGHT ST.

more, the New Charles Center Park and the school playground for P.S. 57, for example, are built on air rights. Air-rights development is not new or radical.

Traditionally, air rights have been most feasible in urban areas of high density where land is expensive. Increasingly, they have been used to reduce the offensive effects of major transportation corridors. As we studied Baltimore, air-rights development of an education park met these two broad tests of feasibility, as well as the site-selection requirements. The site that could be made available through air rights is close to areas of pressing school need, and highly accessible to others. It has significant integration potential. It could make possible a school which would not only be highly visible to the rest of the city, but which could take children out of the back alleys and place them in attractive classrooms. The buildings, intimate and low-rise, would look out over the city – its harbor, its commerce, its housing, its people.

Among the significant technical problems of construction on air rights are those of ventilation, noise, and vibration. Analysis showed that the mass of concrete supports, as well as the platform, would cushion the structure against sound. Experience and other studies have shown that it would be necessary to eliminate openings between the highway and the park to remove undesirable effects of noise and unsound ventilation. Forced ventilation of the highway would have to carry fumes above the roof of the school. In planning, we assumed independent support of the park platform to avoid vibration. Environmental conditions could then be superior to those of a school next to a busy city street.

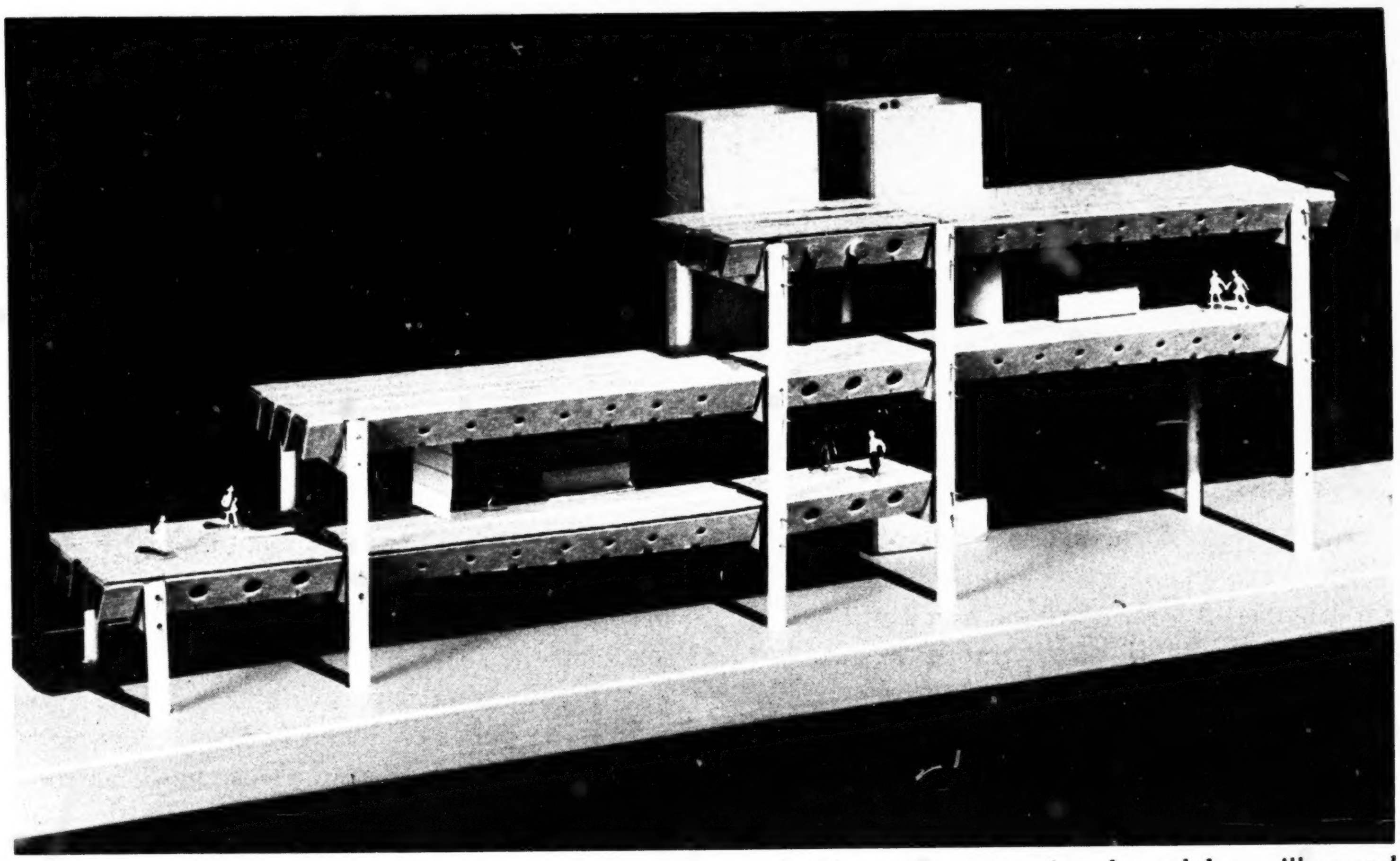
The actual cost of the site – largely a platform over the highway – proved similar to the site-acquisition cost of a comparable inner-city location. The exact comparison will come later in our economic analysis. The air-rights development would also enable the city to reap the benefits of multiple land use. The city would not have to take substantial acreage off the tax rolls, relocate thousands of families and businesses, and acquire approximately 20 acres of downtown property – just for an education park. Rather, it could build its park with most of these costs already absorbed by the highway.

Following our discussions with local and state officials concerning the highway, and as a result of preliminary economic analysis, we decided on a park site built largely with air rights next to Federal Hill. Specifically, the site was composed of 1.9 acres of private land, four acres of land in the Inner Harbor Project, and 5½ acres of air rights development. With this as a start, we sought to create an additional 10 acres through use of terrace, decking, and covered-play areas. To the degree that the park site had to fulfill the six requirements set forth by Dr. Paquin and his staff, and in view of the relationship we feel the education park must have to total city planning, this site assumption was inseparable from our work on the comparison of the park to six scattered-site schools. To those who viewed our work mainly as a comparison between space allocations in a park as opposed to those in scattered-site schools, this site decision was separable from our findings on the educational implications of the park. Our study could then be divided into two parts: site selection, including the construction of a platform over the highways; and space allocations and design for the park above the platform.

Park Design

To develop a useful comparison between a pre-K–9 park for 6,000 students and scattered-site schools with equal capacity required preliminary planning for the park. We had a firm benchmark as far as the scattered-site schools were concerned – the existing educational specifications for an 800-pupil elementary school and a 2,000-pupil junior high school. We had nothing for the park except some generalized claims.

The Park design was shaped by several key considerations, some of them suggested by the school staff, others dictated by the previous study findings. A major consideration was to exploit fully the advantages of consolidated facilities while achieving intimacy in their scale and arrangement. This meant keeping the units small, creating small clusters within the overall park, and developing separate park entrances and exits for the various age groups. It meant taking advantage of the economies of scale not only to provide larger central facilities, but to centralize functions



The basic building module developed for the Baltimore park. The components of each module – pillars and tiers – would be prefabricated for on-site assembly. The pillars would be erected on the platform and the tiers suspended from them. The tiers would provide flooring for the instructional space above and the ceiling for the space below, and would contain major utility lines. Each tier measures 30 by 70 feet. Two modules create six classroom units of 60 by 70 feet and can create considerable variety in interior layouts as well as external appearance.

as well. Another major goal in the design was to create ample recreation space and open areas.

A third consideration was to equip the park with facilities that could not only serve children during the day, but which could also be available for additional community use by parents after the regular school day, thereby increasing the public return on the financial investment. We also wished to achieve a flexible use of park space with a minimum number of fixed-bearing walls and maximum opportunities for the school staff to rearrange space. Related to this need for flexibility was a desire to investigate the possibilities for quick and economical construction a systems approach might offer in a project of this scale. Finally, the design had to exploit the location and prominence of the site.

The systems approach to construction entails the prefabrication of basic building blocks off-site, for on-site assembly. Developing some of the ideas suggested by the School Construction Systems Development project in California, we attempted to create a basic classroom module – that is, pre-stressed structural units which could serve as the basic building block for instructional areas in the Baltimore Park.

The basic module we developed is three stories high, although it can be lower or higher. Each tier measures 30 feet by 70 feet, and encompasses enclosed and covered instructional space as well as a terraced protected play area. Two blocks create six classroom units of 60 feet by 70 feet, four create 12 units of 120 feet by 70 feet, and so forth. The blocks can be stacked or spread out to create considerable variety not just in interior dimensions, but also in overall appearance.

On the Baltimore site, we envisioned the blocks stacked in a step-like arrangement facing the harbor, giving each class unit a dramatic view of the harbor and downtown areas. Each unit would have its own recreation and play space.

The basic units of each module could be prefabricated. Columns could be erected on the school platform, and decks hung from the columns. The deck would provide the floor for the upper space and the ceiling for the lower space, and would serve as a conduit for utility lines. Space within the modules would be divided by movable partitions. The only permanent walls would be those erected to form a separate cluster of school units within the park, or those which, for design purposes, might create a staggering of the modules rather than long, straight rows.

In arranging the clusters within the park, we were guided by the need to keep the scale intimate, to provide for some separation among age groups, and to encourage a school organization in which the children could relate to a building and area within the park which would serve as their "home turf."

Park Organization and Form

Because of its size – 6,000 students – the Pre-K–9 Park in Baltimore offered the possibility of multi-grading, the division of the children into three-year age levels with each level located in a separate area of the park. One possibility would be to create five "houses" within the park, organized around the following age groups and enrollments and featuring non-grading.

HOUSE	AGE LEVEL	ENROLLMENT
A	4 5 6	800
B	6 7 8	1300
C	8 9 10	1300
D	10 11 12	1300
E	12 13 14	1300
		6000

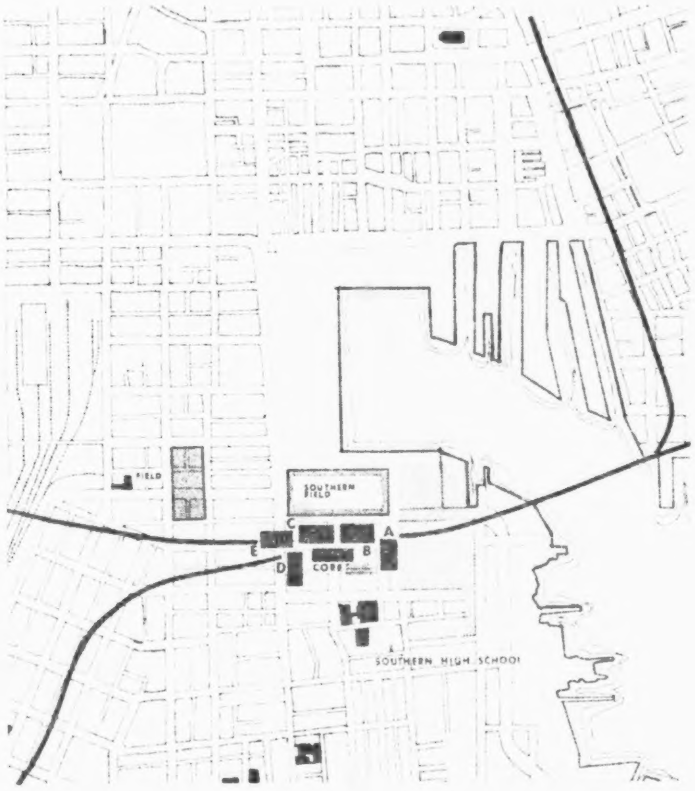
As the chart suggests, this age division should be flexible; children aged six, eight, and ten could be assigned to the next higher house if that should seem best for their individual needs. A seven-year-old in House B, for instance, could be assigned to House C.

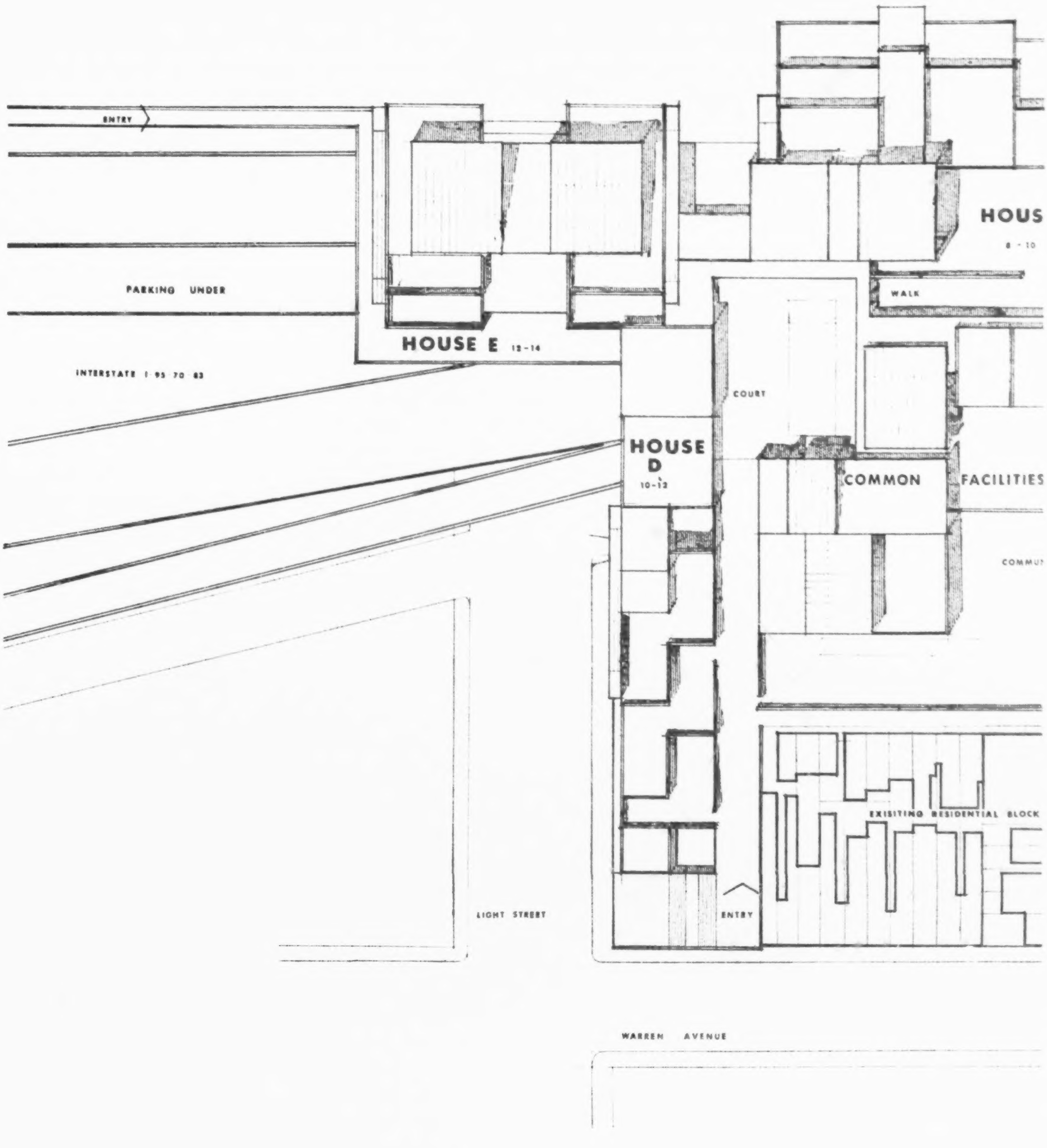
Under the terms of this plan, each house can be subdivided into still smaller units with which the children can achieve their primary identity. House A contains 16 units of 50 children each, House B 10 units of 130 children each, House C 10 units of 130 children each, House D five units of 260 students each, and House E five units of 260 students each. This organization reflects the size and complexity of the child's environment as he advances from house to house.

The schematic diagram below translates this organization into space relationships. House A, designed for the four-to-six-year-olds, receives more space per child than any of the other houses. Its buildings would be low-density, with self-contained play areas and open space, a separate entranceway, and 16 school units. House B, for the six-to-eight-year-olds, overlooks the downtown area, and is more densely developed – 10 units each, containing 130 children. It too is self-contained, with play terraces for each unit.

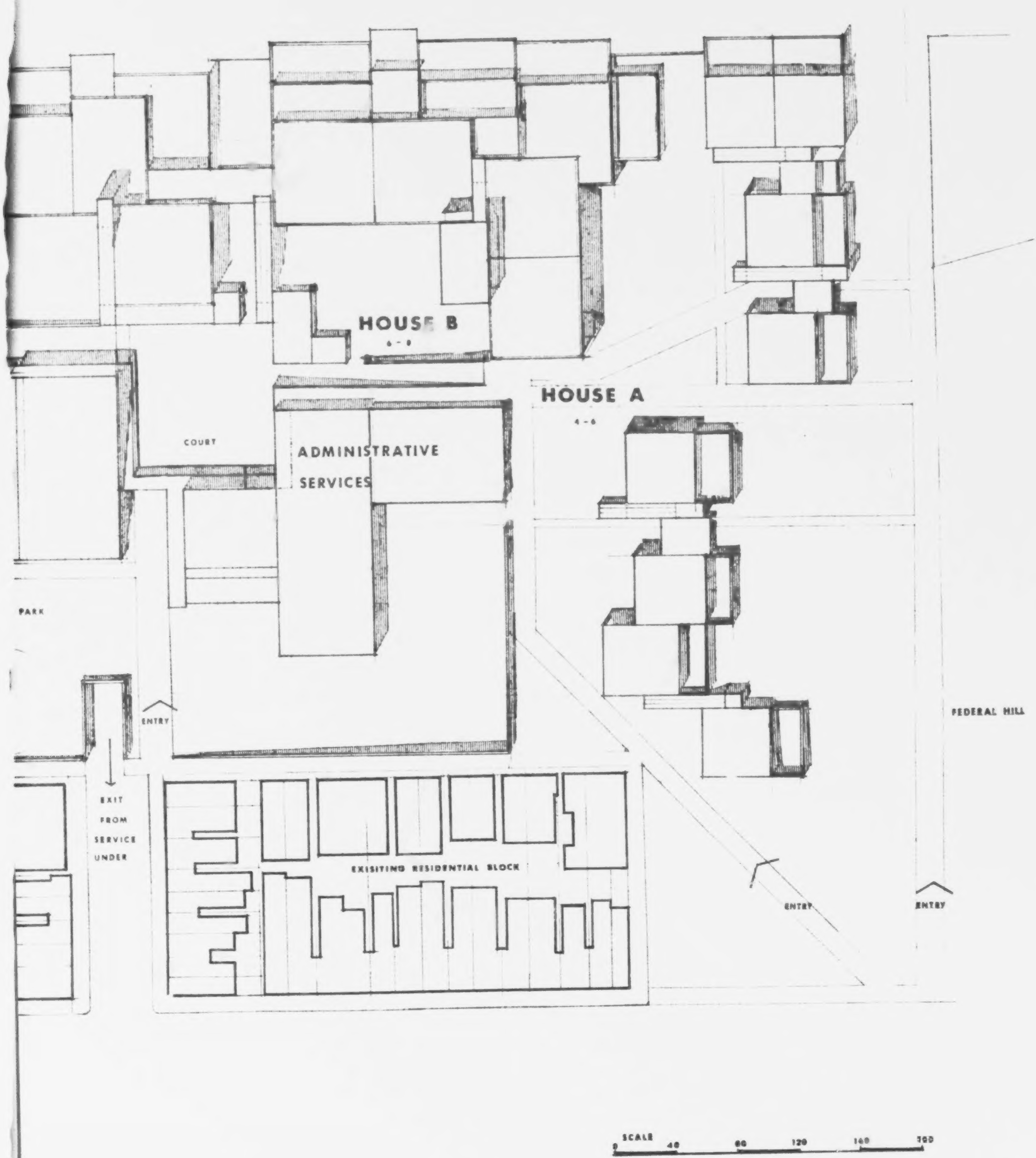
With the exception of some assembly functions and specialized service programs for individual students, the children in House B would spend most of their time, including their lunch period, in the house. It is assumed that food would be centrally prepared but delivered to each house. House C generally duplicates the density and downtown view of House B, although it is anticipated that at this age (8-10), the child would begin to leave the house under an individualized

Site Map: Schematic School Locations

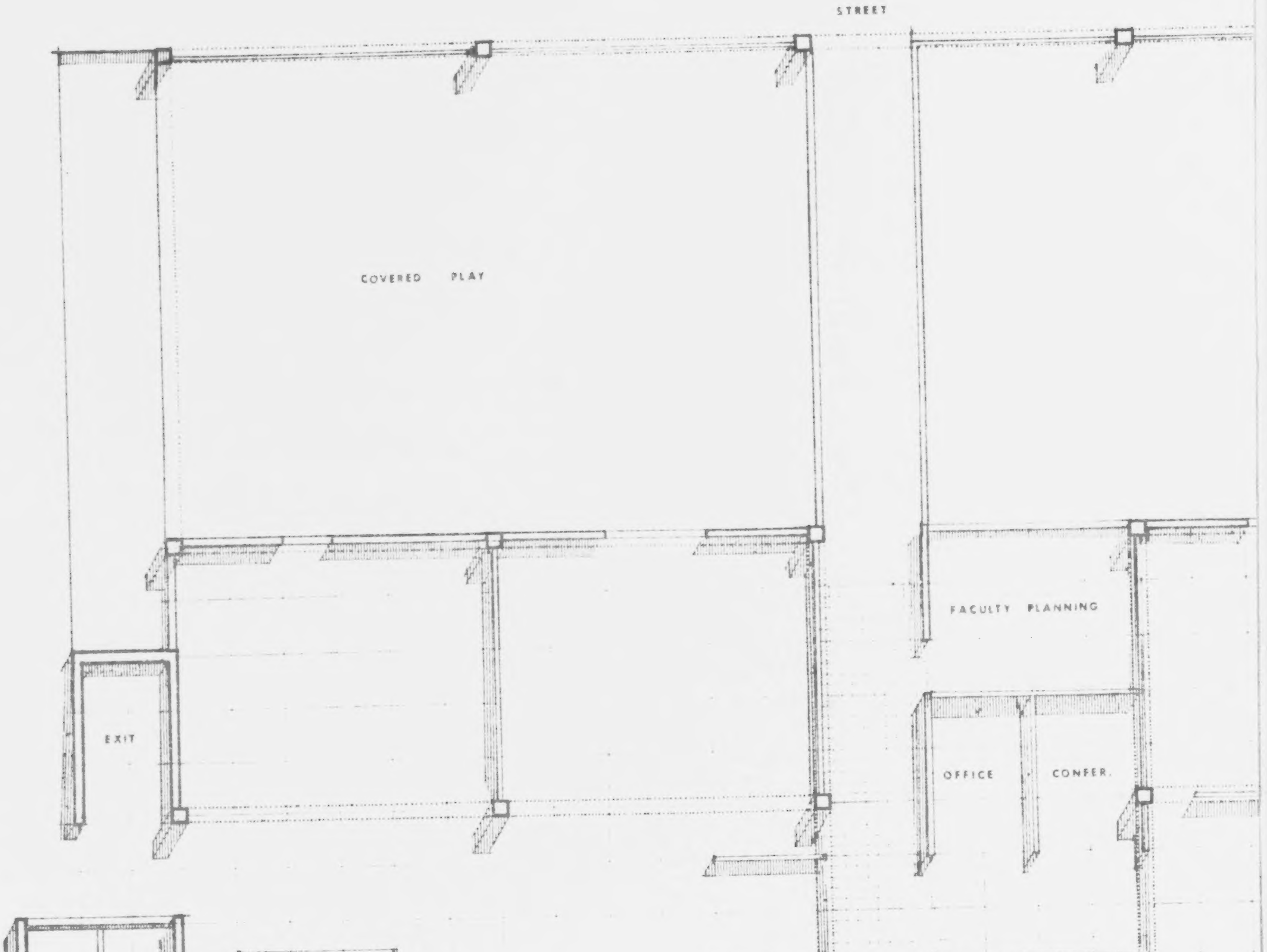



ENTRY
HOUS
8 - 10
PARKING UNDER
WALK
HOUSE E 12-14
INTERSTATE I-95-70-83
COURT
HOUSE
D
10-12
COMMON FACILITIES
COMMU
EXISITING RESIDENTIAL BLOCK
LIGHT STREET
ENTRY
WARREN AVENUE

This schematic layout of the Baltimore park proposal shows the five separated houses connected by a mall and served at the center by administrative and common facilities, including auditoriums, libraries, a park, and


HOUSE B
6 - 8
HOUSE A
4 - 6
COURT
ADMINISTRATIVE
SERVICES
PARK
ENTRY
EXIT
FROM
SERVICE
UNDER
EXISITING RESIDENTIAL BLOCK
ENTRY
ENTRY
FEDERAL HILL
SCALE
0
40
80
120
160
200

other specialized space. Each house serves its own age level with specialized facilities and separate entrances and exits.

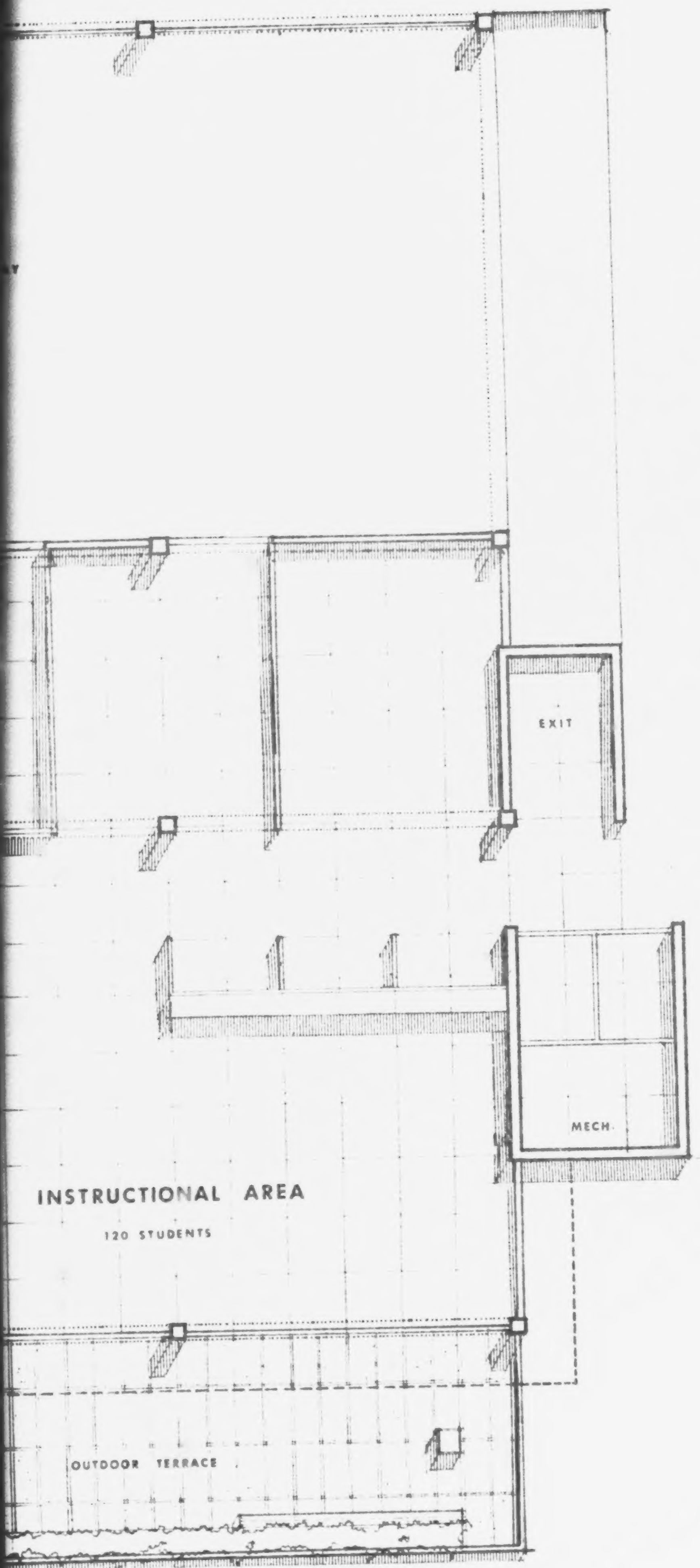

STREET
COVERED PLAY
FACULTY PLANNING
EXIT
OFFICE
CONFER.
SATELLITE LIBRARY
MECH
INSTRUCTIONAL AREA
120 STUDENTS
OUTDOOR TERRACE
DINING AND ASSEMBLY AREA
SCALE
0 5 10 15 20 25 30 35 40

curriculum which would take him to some of the specialized facilities of the park. In Houses D and E, the density increases to five units of 260 students each. Here the children would be from 10-14 years old and very mobile. These children would be too old to rely on play terraces for physical education, but would walk via a protected pedestrian mall to a nearby four-acre playing field, made available in the Inner Harbor Project. They would also spend considerable time in specialized facilities, such as the library, shops, and language and science laboratories.

The generalized site plan translates the suggested organization and spatial relationships of the five houses into proposed buildings. The building module is reflected in the decks and terraces shown along the outer perimeter of the park. The principal physical link uniting the various park elements is a school street, designed for pedestrians only and providing access to all facilities and houses. The park has five controllable entrances which offer separate access for each grade grouping and for overall park security. Parking for 500 cars is provided in a structure beneath one of the elevated highway lanes.

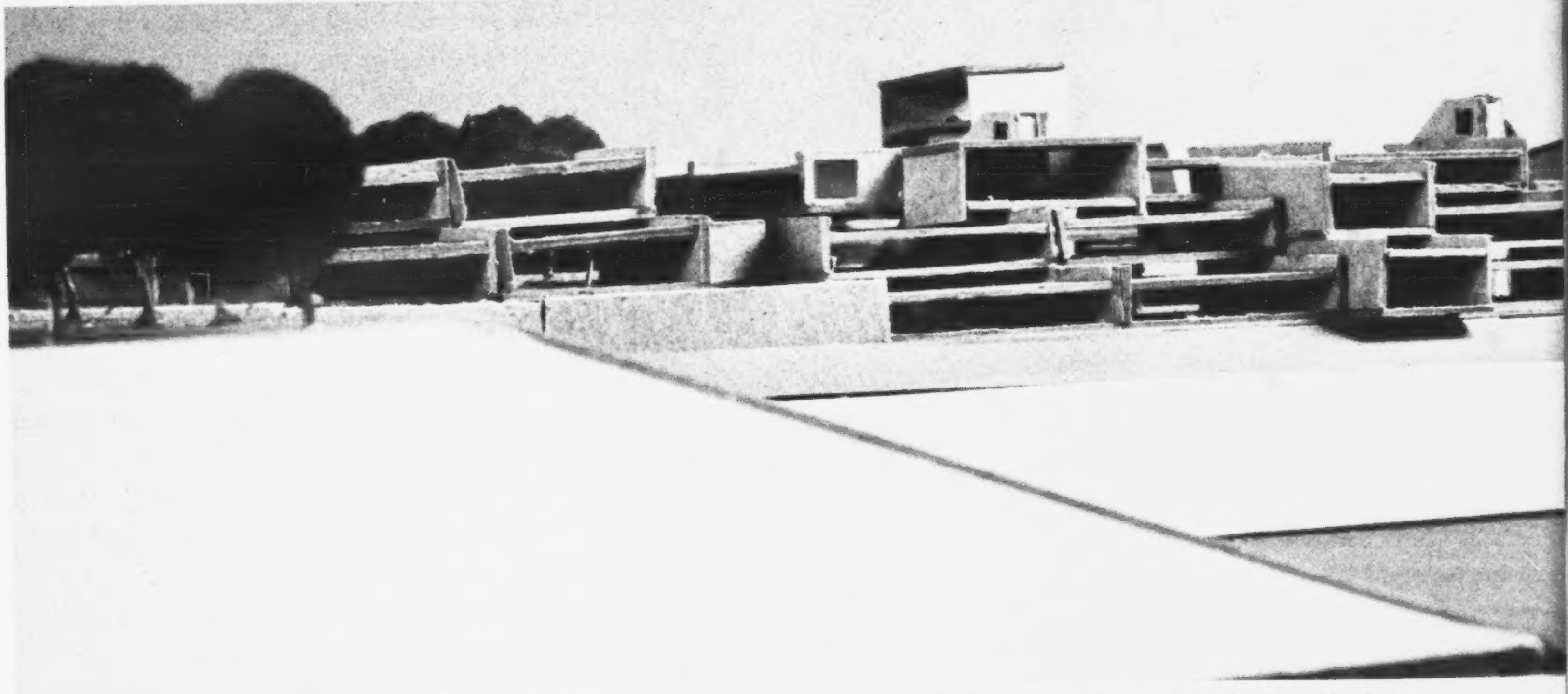
Space Allocation

At the very heart of the proposed model are the consolidated facilities and services which have traditionally been among the biggest theoretical advantages of the park. One of our principal assignments in Baltimore was to determine how great these advantages are. Specifically, we were to contrast the park model with its equivalent in five scattered-site elementary schools and one junior high school, using as a control group current educational specifications for an 800-pupil elementary school and a 2,000-pupil junior high school.



Typical House Plan

Five building modules could create this basic school plan for the proposed Baltimore park. In this cross-section, two instructional areas are joined by a dining and assembly area, a satellite library, teachers' offices, and planning areas. Each instructional area also has its own covered play space and outdoor terrace, and has maximum flexibility for rearrangement of space to accommodate large and small group instruction.



This working model of the Baltimore park shows how it would be situated – overlooking the Inner Harbor,

We concluded that the park plan in Baltimore could achieve significant increases in space utilization, and subsequent space reductions in food-preparation and assembly areas. In the control group, 41,000 square feet were devoted to five 350-student auditoriums and one 1,000-student auditorium. In the park, because of increased utilization, we were able to reduce this by 19,000 square feet. Moreover, the assembly space in the park could include an 800-seat music center, a 500-seat theater, and a 250-seat audio-visual center. For food services, the control group required 64,000 square feet – approximately 22,000 square feet for six kitchens and 42,000 square feet for cafeteria space. In the park, we were able to consolidate the kitchen space and decentralize some of the dining spaces into all-purpose rooms. This produced, at a conservative estimate, a saving of 10,000 square feet, after 2,000 square feet was devoted to a school snack bar. No change was provided in the basic space allocated for teacher planning, administration, or physical education areas, although we were able to provide for increased specialization in these areas. The following improvements are available in the park with no net space increases:

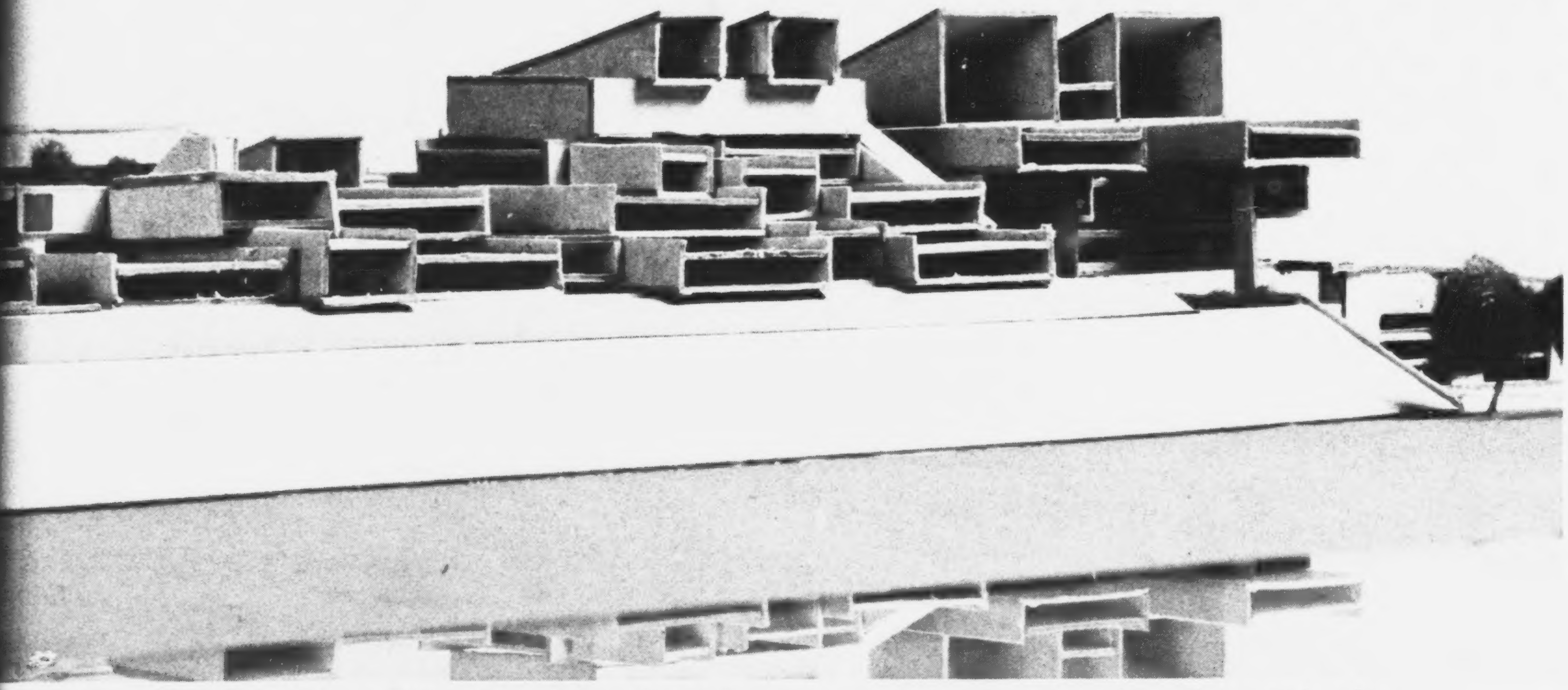
Physical education:
A 1,800-square-foot training pool; a 25-yard six-lane swimming pool; 27,000 square feet of covered, private play areas; a field house; and an increase in physical education time and space to one hour per day at 100 square feet per student.

Teacher planning and facilities:
A 2,000-square-foot staff library, a faculty seminar room, a central area for social and professional meetings, reserved off-street parking.

Administrative and health services:
An information storage and retrieval center, a health suite with public health-oriented dental and medical facilities, a school security office.

Increases were made in library and instructional areas. An additional 3,000 square feet in library space and a total of 18,000 square feet in additional instructional space were provided in the park. Instructional areas were increased from 28 square feet per child to 30 square feet per child.

The park also offered the opportunity to provide community-related facilities, such as the library, the recreation facilities, the swimming pool, the three auditoriums, and a small-scale community park at the southern end of the school.



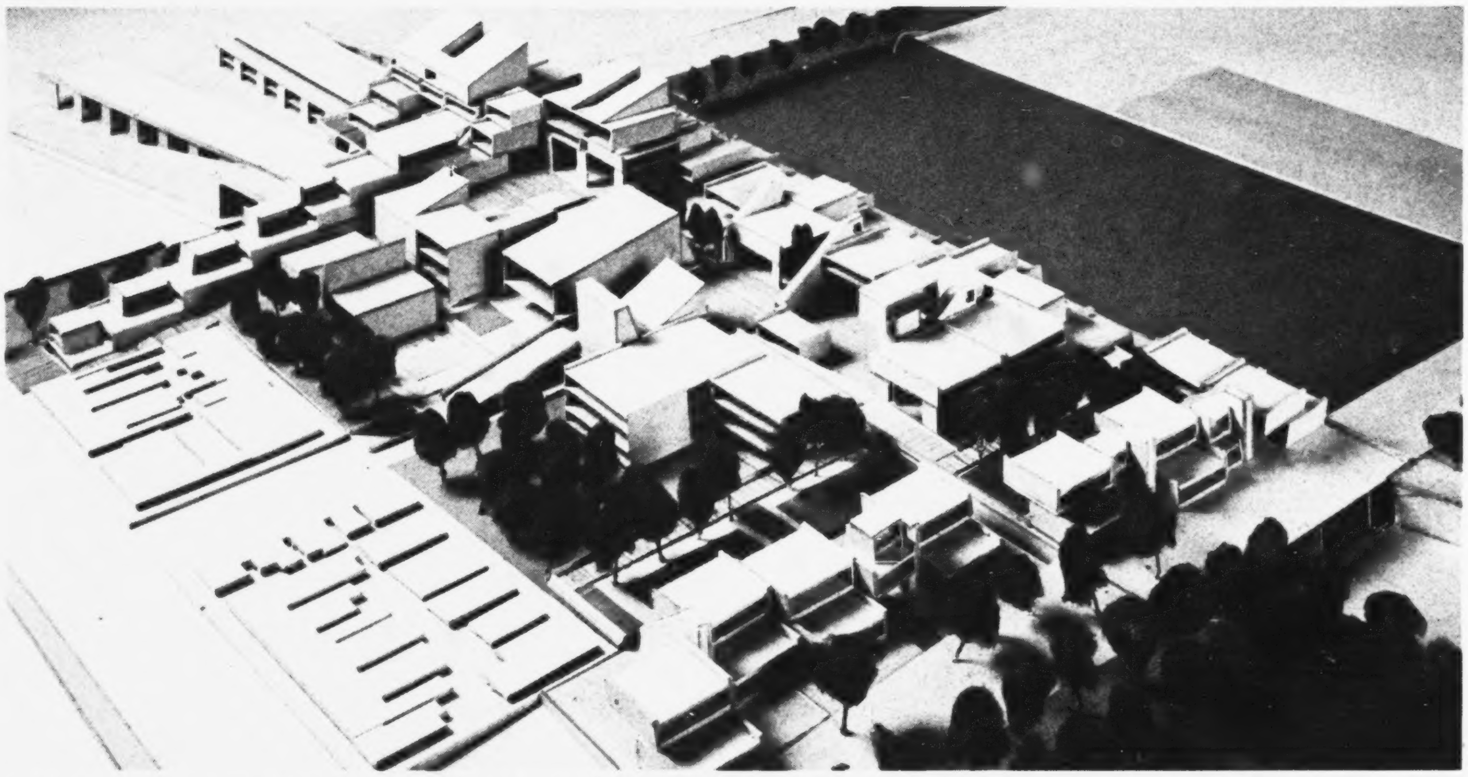
adjoining Federal Hill, and covering the highway network slated to pass along the water's edge.

SUMMARY: EDUCATION PARK VS. CONTROL GROUP

	PARK SUBTOTAL (SQ. FT.)	TOTAL (SQ. FT.)	CONTROL GROUP TOTAL	CHANGE IN PARK
1 ASSEMBLY		22,000	41,000	−19,000
800 SEATS MUSIC	10,000			
500 SEATS PERFORMING	8,000			
250 SEATS A/V	4,000			
2 FOOD SERVICES		54,000	64,000	−10,000
3 LIBRARY SERVICES		36,000	33,000	+ 3,000
CENTRAL LIBRARY	10,000			
A/V TECHNICAL CENTER	6,000			
BOOK STORE	2,000			
STAFF LIBRARY	2,000			
SATELLITE LIBRARIES	16,000			
4 RESOURCE AND SUPPORTING		54,000	46,000	+ 8,000
5 PHYSICAL EDUCATION		70,000	70,000	n.c.
FIELD HOUSE	18,000			
COVERED PLAY SHELTERS	27,000			
SWIMMING	25,000			
6 INSTRUCTIONAL AREAS		270,000*	252,000	+18,000
7 ADMINISTRATIVE & HEALTH		27,000	27,000	n.c.
8 TEACHING PLANNING & SMALL GROUP		27,000	27,000	n.c.
TOTAL		560,000	560,000	n.c.

A/V = Audio-Visual n.c. = No Change

*Instructional areas would be increased from the current 28 square feet per pupil to a standard 30 square feet per pupil in the education park.



This aerial view of the model gives a physical dimension to the House relationships. Federal Hill is in the foreground, the harbor is the right. Directly adjoining Federal Hill is House A.

Scheduling

Much has been written about extending the school plant for more efficient utilization. The Park as developed in Baltimore offers great possibilities for putting these proposals into practice.

For more efficient utilization of special facilities, especially physical education facilities, some programming here has been extended over a nine-hour day from 8 to 5 rather than the six-hour (9 to 3) day. Staggered class starts at five half-hour intervals from 8 a.m. to 10 a.m., with staggered dismissal from 2 p.m. to 4 p.m., might be considered.

In addition to utilization advantages, this would reduce peak loads of students arriving or departing; an average of 1,200 would arrive for any given starting period. Distributed among four major pedestrian access streets, this would reduce average massing levels for the neighborhood school. It would also permit extended day programs to provide for children with working parents. It could provide study facilities for children who may not have them at home, and encourage the use of the school for after-hours academic or extracurricular activities.

A primary reason that the park can work for the extended day is that it places responsibility for maintaining school functions on staffs — library, maintenance, administrative, etc.—rather than on individuals, as does the neighborhood school. It also offers the possibility of non-concurrent staff hours.

Economic Analysis

Having tried to show some of the advantages of the park, we then faced the problem of cost. How would the cost of such a facility compare with the costs of the scattered schools? One assumption at the outset was that the scattered schools would also be located in or close to the downtown area where the need is greatest, and their sites would reflect high land costs.

Site-cost analysis in this planning situation is filled with potential pitfalls because of the substantial use of air rights. As already explained, this is an effort to substitute technical problems for social and political ones. By incorporating 5½ acres of air rights over a highway, one faces substantial engineering problems while avoiding the problem of a significant degree of expensive land acquisition, displacement, and demolition. Preliminary engineering analysis indicates that air-rights development in this case, that is, for the construction of a school platform over the highway, would cost about $600,000 per acre or $3,300,000 for the 5½ acres.* The 1.9 acres of private land which would be needed would cost approximately $350,000 per acre, or $660,000. The four acres of playfield space in the Inner Harbor Project would cost approximately $700,000, assuming a continuation of the present policy of offering a renewal land at half the fair market value.

This "made land" for the park, including decks, play terraces, and covered play areas, totals seven acres. Assuming $3.00 per square feet of added building costs for increased structure, surface, and protection required by these areas, this would involve an outlay of $900,000. In addition, 1.6 acres of public right-of-way would be needed under the park-site proposal – for which we assumed there would be no charge. This makes a total park site outlay of $5,560,000 for 20 acres.

The scattered-site schools would require a minimum of 24 acres, assuming current site standards and construction techniques. One should also, for purposes of comparison, assume that under the scattered-site plan at least two acres of public land could be included. It should be further assumed that the same four acres of urban renewal land made available for the park could also be made available to the neighborhood schools at a cost of $700,000. The additional 14 acres would have to be acquired privately and at the same assumed rate as the private land incorporated into the park site – $350,000 per acre, or $5,400,000. This would make the total site cost for the scattered schools $6,100,000. Although no figure will be included in this comparative analysis, it should be noted that, under the scattered-site program, 19 acres of valuable downtown real estate would be taken off the tax rolls. Under the park plan, only 5.9 acres would be removed.

It is estimated that the building construction cost for the park and the scattered-site schools will be the same. If we are in error here, we err on the side of conservatism. The control group and the park are equal in space – 560,000 square feet. It is possible, for reasons cited earlier, that the unit cost for park construction would be lower because of the scale of the project. Moreover, because the Baltimore park would feature modular construction, it is quite likely that further unit-cost reductions could be achieved.

The park would involve two major cost factors not present in the control group. One is the cost of a parking structure with spaces for 500 vehicles. At a unit cost of $2,000 per space, this would involve $1,000,000. The second is the cost of the added equipment required for the specialized facilities in the park, which we have computed at $1,620,000, compared to $1,350,000 for the control group. The following table summarizes the cost analysis:

	Park	Control Group
Building construction cost	$11,200,000*	$11,200,000
Site-acquisition cost	1,360,000	6,100,000
Platform and "made land" cost	4,200,000	–
Parking	1,000,000	–
Equipment	1,620,000	1,350,000
Total	$19,380,000	$18,650,000

*This does not reflect the savings we feel the modular construction might afford.

The cost per child is $3,230 for the park versus $3,110 for the control group. Assuming that the study is accurate to about ± 10 percent, the cost difference is not significant.

Given the specific school situation in Baltimore and the goals of the education staff in that city, we recommend that the park concept be pursued as a means of meeting the school needs of the downtown and adjacent areas. To be sure, the short time and nature of this study left many gaps in this analysis, and many questions need more detailed answers. The full data and assumptions in our work, as well as a list of the major questions we feel should be pursued further, with the help of a full-time planning consultant, were turned over to the Baltimore staff. But, given our original mandate and the time limitations, we feel strongly that the park concept makes great sense in view of the local conditions in Baltimore.

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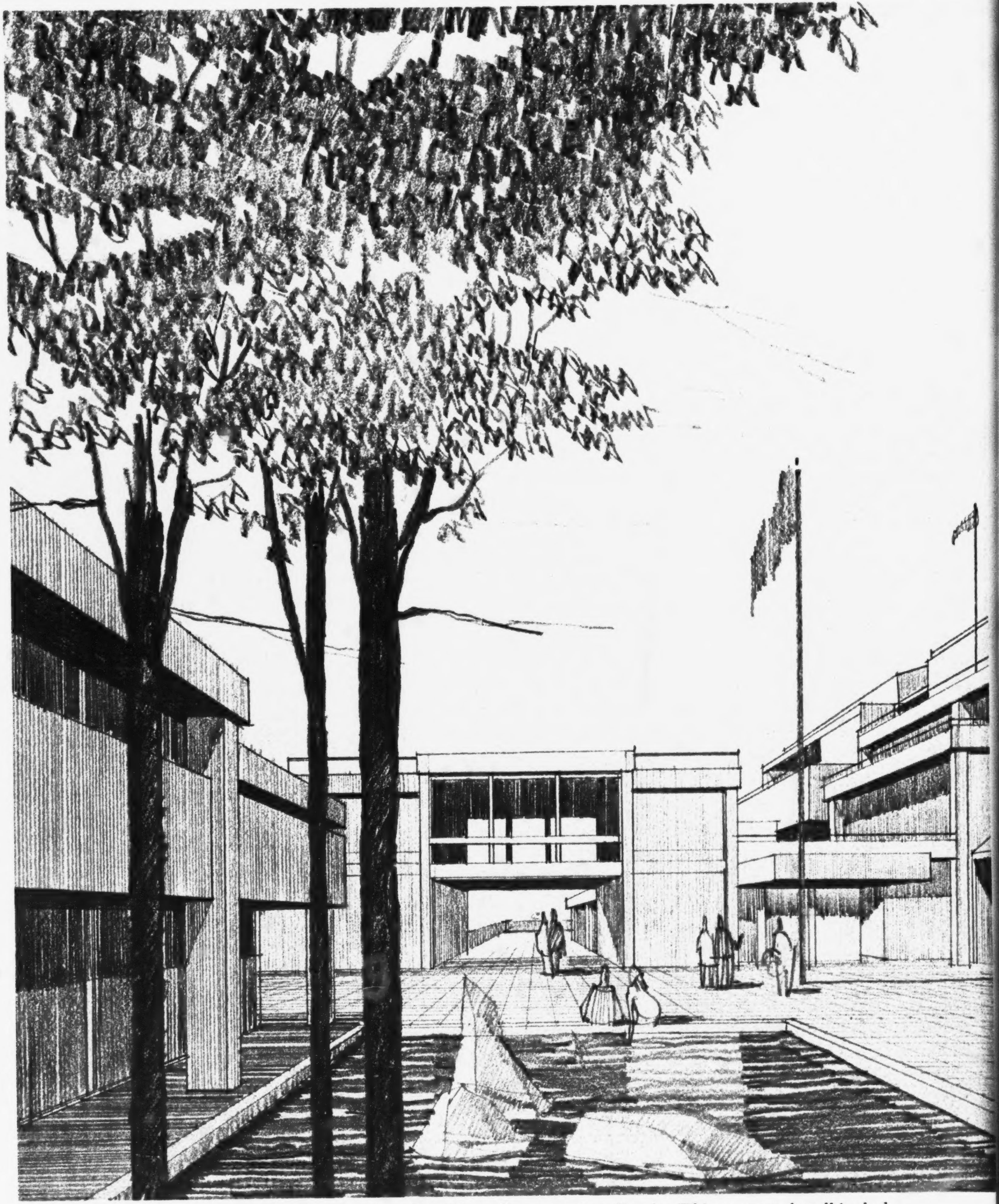
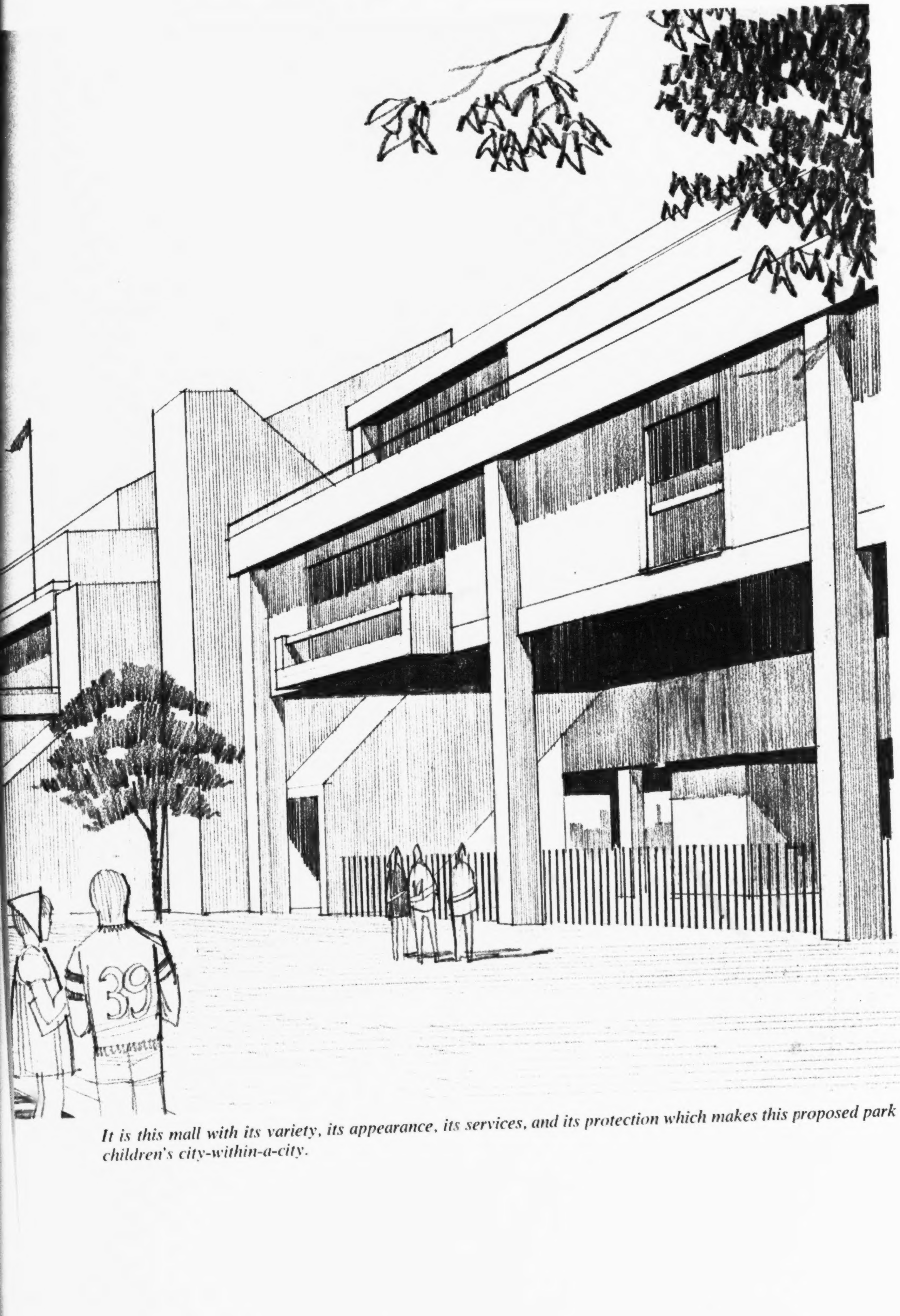
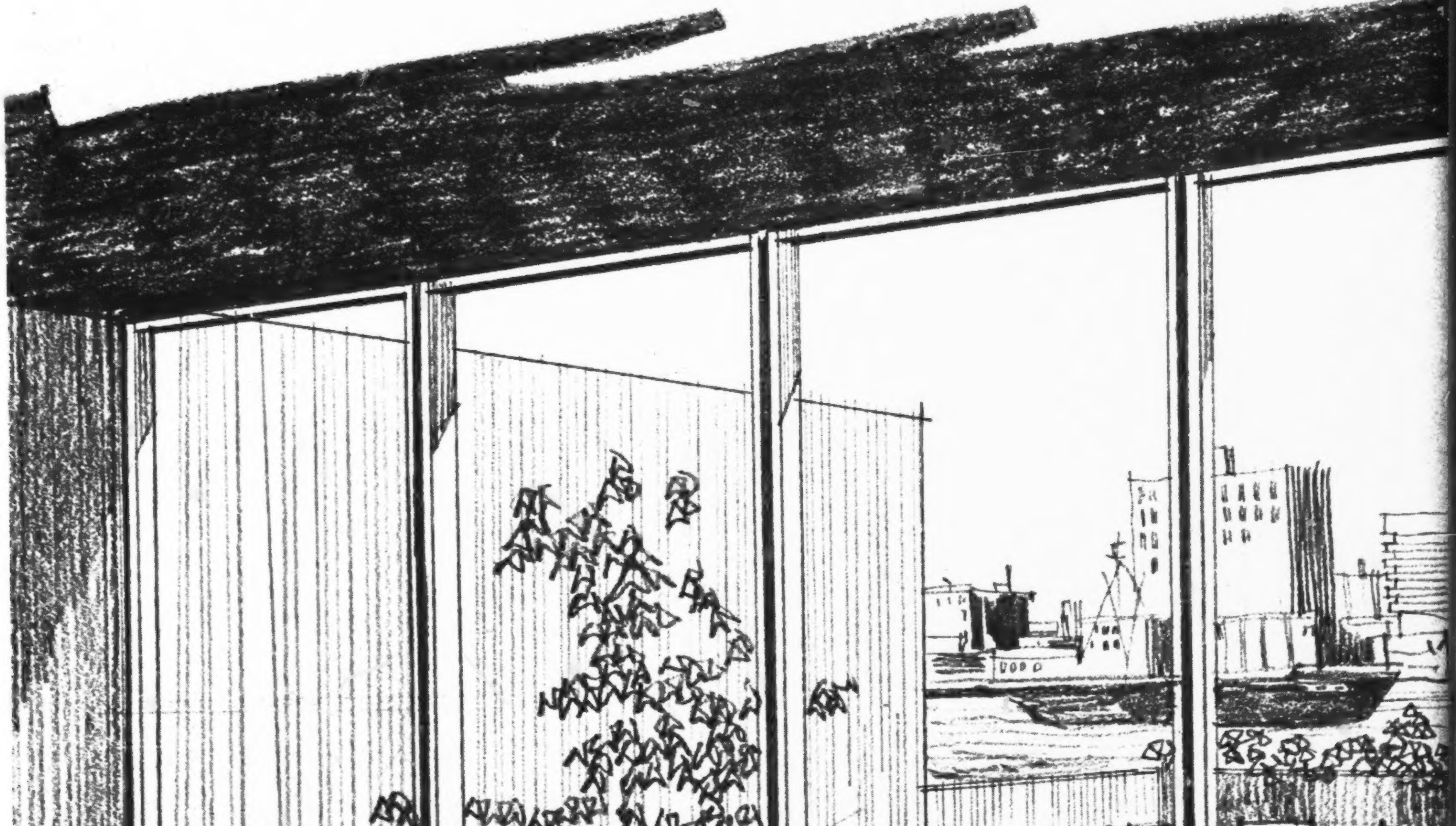
*In analyzing platform costs, it was assumed that supports would follow the most economical configuration without infringing on highway alignments, that all costs related to traffic would be borne by the highway, and that all costs of platform support and earth shoring for the school would be borne by the school.



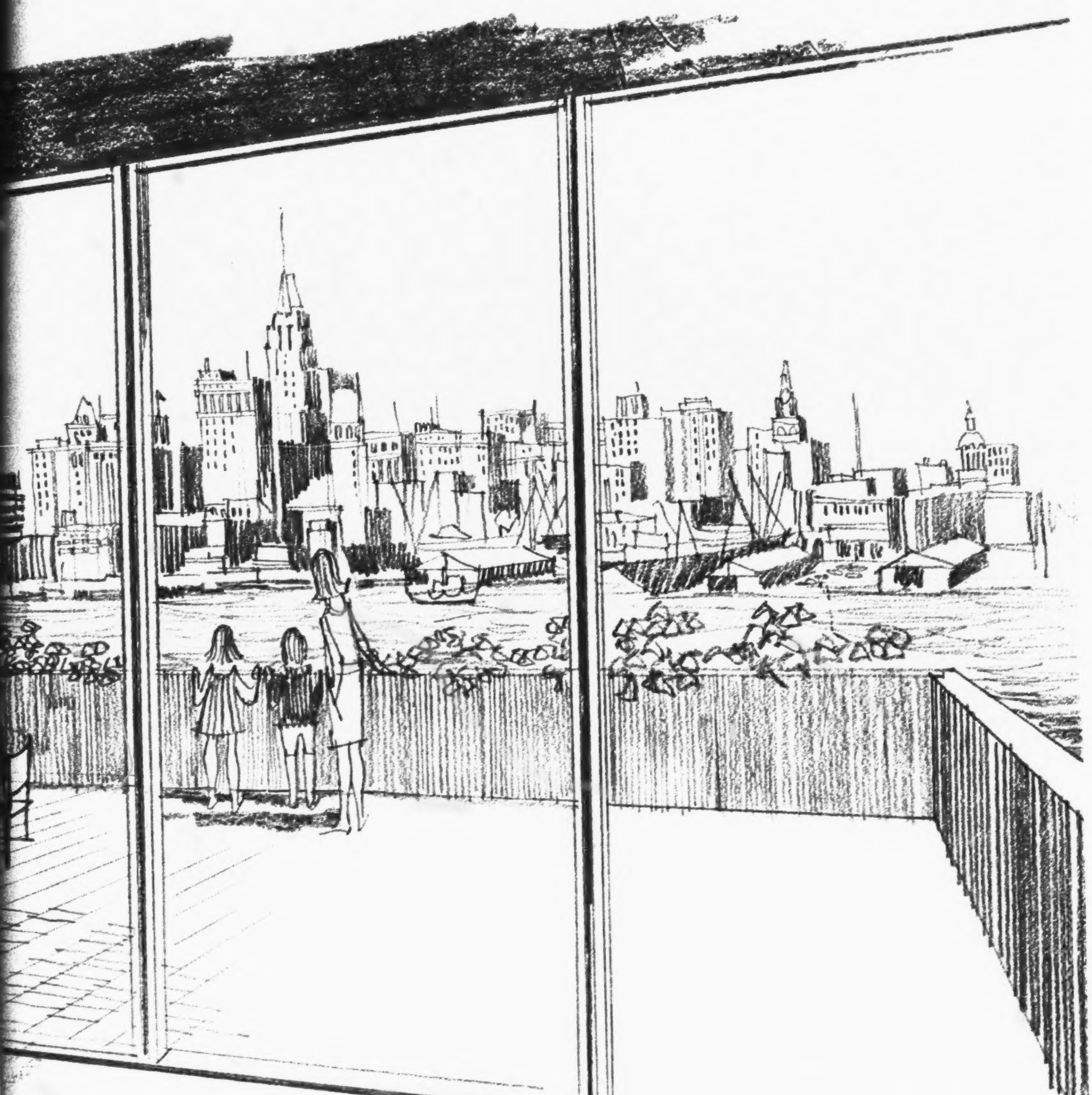
An interior view of the proposed park, showing the wide mall connecting all units. This protected mall includes small-scale assembly areas, parks, and promenades, and provides access to all units and facilities in the park.



It is this mall with its variety, its appearance, its services, and its protection which makes this proposed park a children's city-within-a-city.



A typical view, from the classrooms and terraces of the proposed park, of the harbor and city below.



conclusion

Throughout this report, we have attempted to show that the most useful way to evaluate the education park is under real conditions.

In Baltimore, New York, and Philadelphia, using actual conditions, we have tried to delineate the advantages and disadvantages of the park. We have posed major questions, answered some of them, and laid the groundwork for further study.

Those interested in the park may be interested in knowing the results of our work in the three study cities.

In Philadelphia, three of the prototype designs have been incorporated into the city's capital building program for the next six years.

In New York City, a special unit in the City Planning Commission, working with state, federal, and private funds, is developing the linear city in cooperation with the Board of Education.

In Baltimore, the park proposal is now being reviewed intensively by the Board of Education, the City Planning Commission, and other local and state agencies.

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CREDITS

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